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reclassification data for the third quarter of 2008.

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 substance identification.

=> d l88 bib abs hitstr tot

L88  ANSWER 1 OF 30  HCAPLUS  COPYRIGHT 2009 ACS on STN
AN   2007:1178522  HCAPLUS  Full-text
DN   147:472119
TI   Secondary nonaqueous electrolyte battery
IN   Nishida, Nobumichi
PA   SANYO Electric Co., Ltd., Japan
SO   Jpn. Kokai Tokkyo Koho, 12pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     ---------------     ----   --------    -------------------    --------
PI   JP 2007273260        A     20071018    JP 2006-97602          20060331 <--
PRAI JP 2006-97602                20060331  <--
AB   The battery has a cathode containing a cathode active mass, an anode
     containing an anode active mass, and a nonaq. electroltye solution containing
     a nonaq. solvent and an electroltye salt; where the charging voltage of the
     cathode is 4.4-5.1 V on lithium basis, the electroltye solution further has a
     compound which reacts with the anode active mass and forms a coating; and the
     battery is prepared by repeatedly ≥1 time charging the battery until the
     potential of the cathode becomes 3.0-4.3 V and discharging until the potential
     of the cathode becomes 2.8-3.1V, and again charging until the potential of the
     cathode becomes ≥ 4.4 V.
IT   552934-38-6, Cobalt lithium manganese nickel oxide
     (Co0.34Li1Mn0.33Ni0.33O2) 642999-33-5, Cobalt lithium magnesium
     zirconium oxide
     RL: MOA (Modifier or additive use); USES (Uses)
        (structure and manufacture of secondary lithium batteries)
```

RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 2 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:1060515 HCAPLUS Full-text
DN 147:347219
TI Secondary batteries suppressing swelling on high-temperature storage and nonaqueous electrolytes therefor
IN Yamashita, Noriko; Iwanaga, Masato; Abe, Koji; Miyoshi, Kazuhiro
PA Sanyo Electric Co., Ltd., Japan; Ube Industries, Ltd.
SO Jpn. Kokai Tokkyo Koho, 10pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2007242464 | A | 20070920 | JP 2006-64400 | 20060309 <-- |
| PRAI JP 2006-64400 | | 20060309 <-- | | |

OS MARPAT 147:347219
AB The title batteries satisfy cathode potential (Li standard) 4.4-5.1 V and have nonaq. electrolytes (also claimed) containing R1OCOC.tplbond.CCO2R2 (R1, R2 = alkyl). The batteries may have cathode active masses containing Zr- and Mg-added Li cobaltates and Li Ni Mn complex oxides with layered structure. The batteries exhibit improved overcharge safety.
IT 182442-95-1P, Cobalt lithium manganese nickel oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cathode active mass; nonaq. electrolyte secondary batteries containing dialkyl acetylenedicarboxylates to suppress high-temperature swelling)
RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 3 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:1022586 HCAPLUS Full-text
DN 147:347105
TI Cathode active mass for secondary nonaqueous electrolyte battery and its manufacture
IN Jitsugiri, Yukio; Amagasaki, Yukiko; Kawasato, Takeshi; Saito, Naoshi; Kato, Tokumitsu; Wakasugi, Yukimitsu
PA AGC Seimi Chemical Co., Ltd., Japan
SO PCT Int. Appl., 32pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2007102407 | A1 | 20070913 | WO 2007-JP53968 | 20070301 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| | RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | KR 2008009147 | A | 20080124 | KR 2007-727923 | 20071129 <-- |
| | CN 101331631 | A | 20081224 | CN 2007-80000673 | 20071229 <-- |
| | US 20080160414 | A1 | 20080703 | US 2008-47481 | 20080313 <-- |
| PRAI | JP 2006-56610 | A | 20060302 | <-- | |
| | WO 2007-JP53968 | W | 20070301 | | |

AB The cathode active mass is represented by: LipAxMyOzFa (A represents ≥1 element selected from Co, Mn and Ni; M represents ≥1 element selected from transition metal elements other than element A, Al, and alkaline earth metal elements; p = 0.9–1.1; 0.965 ≤x <1.00; 0 <y ≤0.035; z = 1.9–2.1; x + y = 1; and a = 0–0.02), and has a surface layer which comprises a Li-containing composite oxide powder containing zirconium; where in the surface layer the

zirconium/element A atomic ratio within 5 nm of the surface layer from the surface is ≥1.0. The active mass is manufactured by stirring while adding a Zr-containing aqueous solution having pH 3-2 to a Li-containing composite oxide powder, and firing an O-containing atmospheric

IT 147683-99-6P, Cobalt lithium zirconium oxide 329082-61-3P , Cobalt lithium zirconium oxide (Co0.99LiZr0.01O2) 678159-00-7P , Aluminum cobalt lithium zirconium oxide 949014-26-0P, Cobalt lithium manganese nickel oxide (Co0.33Li1.05Mn0.33Ni0.33O2.04)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(structure and manufacture of cathode active mass having Zr-containing Li composite oxide surface layers for secondary lithium batteries)

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 329082-61-3 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.99LiZr0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.01 | 7440-67-7 |
| Co | 0.99 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

RN 678159-00-7 HCAPLUS
CN Aluminum cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

RN 949014-26-0 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33Li1.05Mn0.33Ni0.33O2.04) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2.04 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1.05 | 7439-93-2 |

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 4 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:819603 HCAPLUS Full-text
DN 147:215670
TI Nonaqueous electrolyte secondary battery, nonaqueous electrolyte, and charging method therefor
IN Iwanaga, Masato; Oki, Yukihiro; Abe, Koji; Miyoshi, Kazuhiro
PA Sanyo Electric Co., Ltd., Japan; Ube Industries Ltd.
SO U.S. Pat. Appl. Publ., 10pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20070172730 | A1 | 20070726 | US 2007-656486 | 20070123 <-- |
| | JP 2007200688 | A | 20070809 | JP 2006-17286 | 20060126 <-- |
| | CN 101009391 | A | 20070801 | CN 2007-10001454 | 20070108 <-- |
| | KR 2007078371 | A | 20070731 | KR 2007-3840 | 20070112 <-- |
| PRAI | JP 2006-17286 | A | 20060126 <-- | | |

AB A nonaq. electrolyte secondary battery of the invention has a pos. electrode having a pos. electrode active material, a neg. electrode, and a nonaq. electrolyte having electrolyte salt in a nonaq. solvent. The elec. potential of the pos. electrode active material is 4.4 to 4.6 V relative to lithium, and the nonaq . electrolyte contains pentafluorophenol methanesulfonate. The quantity of compound added is preferably 0.1% to 2% by mass. Also, the pos. electrode active material preferably comprises a mixture of a lithium-cobalt composite oxide which is LiCoO2 containing at least both zirconium and magnesium and a lithium-manganese-nickel composite oxide that has a layer structure and contains at least both manganese and nickel. Thanks to such structure, a nonaq. electrolyte secondary battery can be provided that is charged to charging termination potential of 4.4 to 4.6 V relative to lithium and that has enhanced overcharging safety.
IT 532934-38-6P, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(nonaq. electrolyte secondary battery, nonaq. electrolyte, and charging method therefor)
RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

IT 642999-33-5, Cobalt lithium magnesium zirconium oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte secondary battery, nonaq. electrolyte, and charging method therefor)
RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 5 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1339339 HCAPLUS Full-text
DN 146:84663
TI Nonaqueous electrolyte secondary battery
IN Nishino, Hajime; Kasamatsu, Shinji; Takezawa, Hideharu; Okamura, Kazuhiro; Shimada, Mikinari
PA Japan
SO U.S. Pat. Appl. Publ., 20pp., Cont.-in-part of U.S. Ser. No. 315,189.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 3

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 20060286445 | A1 | 20061221 | US 2006-473334 | 20060623 <-- |
| US 20060141341 | A1 | 20060629 | US 2005-315189 | 20051223 <-- |
| PRAI JP 2004-374200 | A | 20041224 <-- | | |
| US 2005-315189 | A2 | 20051223 <-- | | |

AB Disclosed is a non-aqueous electrolyte secondary battery including: a pos. electrode having a pos. electrode material mixture containing a composite lithium oxide; a neg. electrode; a polyolefin separator; a non-aqueous electrolyte; and a heat-resistant insulating layer interposed between the pos. and neg. electrodes. The pos. electrode material mixture has an estimated heat generation rate at 200° of not greater than 50 W/kg. The pos. electrode and the neg. electrode are wound together with the separator and the heat-resistant insulating layer interposed there between.
IT 142447-14-1, Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) 193215-53-1, Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) 198213-70-6, Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 867249-18-1, Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte secondary battery)
RN 142447-14-1 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mn | 0.02 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 193215-53-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 867249-18-1 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 0.98 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 6 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1339314 HCAPLUS Full-text
DN 146:84662
TI Nonaqueous electrolyte secondary battery
IN Nishino, Hajime; Kasamatsu, Shinji; Takezawa, Hideharu; Okamura, Kazuhiro; Shimada, Mikinari
PA Japan
SO U.S. Pat. Appl. Publ., 22pp., Cont.-in-part of U.S. Ser. No. 315,189.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 3

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20060286444 | A1 | 20061221 | US 2006-473327 | 20060623 <-- |

US 20060141341 A1 20060629 US 2005-315189 20051223 <--
PRAI JP 2004-374200 A 20041224 <--
US 2005-315189 A2 20051223 <--

AB Disclosed is a non-aqueous electrolyte secondary battery including: a pos. electrode having a pos. electrode material mixture containing a composite lithium oxide; a neg. electrode; a polyolefin separator; a non-aqueous electrolyte; and a heat-resistant insulating layer interposed between the pos. and neg. electrodes. The pos. electrode material mixture has an estimated heat generation rate at 200° of not greater than 50 W/kg. The pos. electrode and the neg. electrode are wound together with the separator and the heat-resistant insulating layer interposed there between.

IT 142447-14-1, Cobalt lithium manganese oxide (Co0.98LiMn0.02O2)
182442-95-1, Cobalt lithium manganese nickel oxide
193215-53-1, Cobalt lithium manganese nickel oxide
(Co0.2LiMn0.3Ni0.5O2) 198213-70-6, Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 867249-18-1, Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte secondary battery with improved safety)

RN 142447-14-1 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mn | 0.02 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 193215-53-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 867249-18-1 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 0.98 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 7 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1094429 HCAPLUS Full-text
DN 145:401049
TI Secondary batteries containing lithium tetrafluoroborate in nonaqueous electrolytes, and method for charging the batteries
IN Tsutsumi, Shuji; Iwanaga, Masato; Oga, Keisuke; Nishida, Nobumichi
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 14pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2006286382 | A | 20061019 | JP 2005-104283 | 20050331 <-- |
| PRAI JP 2005-104283 | | 20050331 <-- | | |

AB The batteries have cathode active mass with potential (based on Li) 4.4-4.6 V containing Zr- and Mg-containing LiCoO2 and layered Li Mn Ni mixed oxides, and 0.05-1.5% (based on weight of nonaq. electrolytes) LiBF4 in nonaq. electrolytes. The batteries show improved cycle efficiency and reduced swelling.
IT 582934-38-6P, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) 642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(cathode active mass; secondary batteries containing

lithium tetrafluoroborate in nonaq. electrolytes)
RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 8 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1094404 HCAPLUS Full-text
DN 145:401047
TI Secondary nonaqueous electrolyte batteries bonded with pressure-sensitive adhesive tapes, and method for charging the batteries
IN Obayashi, Atsushi
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2006286337 | A | 20061019 | JP 2005-103173 | 20050331 <-- |
| PRAI JP 2005-103173 | | 20050331 <-- | | |

AB The batteries have cathode active mass with potential (based on Li) 4.4-4.6 V containing (A) Zr- and Mg-containing Li Co mixed oxides and (B) layered Li Ni Mn mixed oxides, and pressure-sensitive adhesive tapes composed of substrate layers and rubber adhesive layers for protection, insulation, or prevention of unwinding of electrodes. The batteries have cathode active mass with improved thermal stability at high potential, and show improved safety and cycle efficiency.
IT 182442-95-1P, Cobalt lithium manganese nickel oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(cathode active mass; secondary nonaq. electrolyte batteries bonded with pressure-sensitive adhesive tapes)
RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component |
|---|---|---|

| | | Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 9 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1094402 HCAPLUS Full-text
DN 145:401046
TI Secondary nonaqueous electrolyte batteries having cathode active mass with controlled size and shape, and method for charging the batteries
IN Inoue, Hidetoshi; Nishida, Nobumichi
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2006286336 | A | 20061019 | JP 2005-103172 | 20050331 <-- |
| PRAI JP 2005-103172 | | 20050331 <-- | | |

AB The batteries have cathode active mass with potential (based on Li) 4.4-4.6 V containing (A) Zr- and Mg-containing Li Co mixed oxides with average particle size (X) 7-30 μm, and (B) layered Li Ni Mn mixed oxides having average particle size (Y) 2-15 μm and aggregated spherical or elliptical shapes with ratio of minor axis/major axis 0.80-1.0, satisfying X/Y = 1.4-15. The batteries have cathode active mass with improved thermal stability at high potential, and show improved safety and cycle efficiency.
IT 182442-95-1P, Cobalt lithium manganese nickel oxide
642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(cathode active mass; secondary nonaq. electrolyte batteries having cathode active mass with controlled size and shape)
RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |

| | | |
|---|---|---|
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 10 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:918270 HCAPLUS Full-text
DN 145:274968
TI Nonaqueous electrolyte secondary battery
IN Iwanaga, Masato; Nishida, Nobumichi; Tsutsumi, Shuji
PA Sanyo Electric Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 9pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 20060199077 | A1 | 20060907 | US 2006-359965 | 20060223 <-- |
| JP 2006236725 | A | 20060907 | JP 2005-48171 | 20050224 <-- |
| KR 2006094477 | A | 20060829 | KR 2006-17530 | 20060223 <-- |
| CN 1825675 | A | 20060830 | CN 2006-10009554 | 20060224 <-- |
| PRAI JP 2005-48171 | A | 20050224 <-- | | |

AB The invention concerns a non-aqueous electrolyte secondary battery with excellent discharge cycle characteristics and a charging termination potential ranging from 4.4 to 4.6 V based on lithium, consisting of a pos. electrode comprising a pos. electrode active material, a neg. electrode, and a non-aqueous electrolyte containing a non-aqueous solvent and an electrolyte salt, in which the pos. electrode active material comprises a mixture of a lithium-cobalt composite oxide containing at least both zirconium and magnesium in LiCoO2, and a lithium-manganese-nickel composite oxide having a layered structure and containing at least both manganese and nickel, and the potential of the pos. electrode active material ranges from 4.4 to 4.6 V based on lithium, and the non-aqueous electrolyte contains at least one of aromatic compds. selected from the group consisting at least of toluene derivs., anisole derivs., biphenyl, cyclohexyl benzene, tert-Bu benzene, tert-amyl benzene, and di-Ph ether.
IT 182442-95-1, Cobalt lithium manganese nickel oxide
532934-38-6, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) 642999-33-5, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte secondary battery)
RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 11 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:759804 HCAPLUS Full-text
DN 145:170774
TI Secondary lithium batteries capable of high-voltage charging, and their charging method
IN Nakagawa, Hiroshi; Asaoka, Kenji; Imai, Katsuya
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2006202529 | A | 20060803 | JP 2005-10417 | 20050118 <-- |
| PRAI JP 2005-10417 | | 20050118 | <-- | |

AB The batteries employ cathode active mass which contain mixts. of Zr- and Mg-containing Li Co oxides, and layered Li Mn Ni oxides, and show 4.4-4.6 V potential (vs. Li), and ammonia-released CM-cellulose ammonium salt as anode binder. The batteries are charged at 4.4-4.6 V potential (vs. Li). The batteries show good charge-discharge cycling characteristics.
IT 532934-38-6P, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) 642999-33-5P, Cobalt lithium magnesium zirconium oxide
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(cathode active mass; secondary Li battery with

cathode containing Li Co Zr Mg oxide and Li Mn Ni oxide, and CM-cellulose anode binder)
RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

L88 ANSWER 12 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:635277 HCAPLUS Full-text
DN 145:106823
TI Secondary nonaqueous electrolyte battery
IN Nishino, Hajime; Kasamatsu, Shinji; Takezawa, Hideharu; Okamura, Kazuhiro; Shimada, Mikinari
PA Matsushita Electric Industrial Co., Ltd., Japan
SO PCT Int. Appl., 39 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 3

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2006068143 | A1 | 20060629 | WO 2005-JP23373 | 20051220 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| | RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | WO 2007072595 | A1 | 20070628 | WO 2006-JP312574 | 20060623 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, | | | | |

MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU,
SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

WO 2007072596 A1 20070628 WO 2006-JP312575 20060623 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN,
MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU,
SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG,
US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

EP 1819008 A1 20070815 EP 2006-767225 20060623 <--
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,
BA, HR, MK, YU

CN 101069305 A 20071107 CN 2006-80001303 20060623 <--
EP 1881545 A1 20080123 EP 2006-767224 20060623 <--
R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL,
BA, HR, MK, YU

KR 2007088678 A 20070829 KR 2007-712821 20070607 <--
KR 874557 B1 20081216
KR 2007098797 A 20071005 KR 2007-712936 20070608 <--
KR 874560 B1 20081216
CN 101160683 A 20080409 CN 2006-80001390 20070608 <--
PRAI JP 2004-374200 A 20041224 <--
WO 2005-JP23373 A 20051220 <--
WO 2006-JP312574 W 20060623 <--
WO 2006-JP312575 W 20060623 <--

AB The battery comprises a cathode having a Li composite oxide-containing cathode mixture on a cathode collector, an anode containing a Li-intercalating material, a separator containing a polyolefin resin, a nonaq. electrolyte solution, and a heat-resistant insulating layer interposed between the 2 electrodes; where The estimated heat generation rate of the cathode mixture at 200° is ≤50 W/kg;and the estimated heat generation rate is determined by determining the relationship between an absolute temperature T and a heat generation rate V of the cathode mixture with an accelerated rate calorimeter or an uncontrollable reaction measuring device (ARC), plotting the relationship between the reciprocal of the absolute temperature T as X axis and the logarithm of the heat generation rate V as Y axis according to the Arrhenius theorem, determining an approx. straight line matched with the plot present in the heat generation region of T < 200° (473 K), and extrapolating the approx. straight line to the temperature axis of T = 200° (473 K).

IT 342447-14-1, Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) 193215-53-1, Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) 198213-70-6, Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 867249-18-1, Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2)
RL: DEV (Device component use); USES (Uses)

(structure of secondary lithium batteries having Li composite oxide-containing cathode mixts. with controlled heat generation rate)

RN 142447-14-1 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mn | 0.02 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 193215-53-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 867249-18-1 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.98LiZr0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 0.98 | 7440-48-4 |

| | | |
|---|---|---|
| Li | 1 | 7439-93-2 |

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 13 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:470248 HCAPLUS Full-text
DN 144:471465
TI Nonaqueous electrolyte secondary battery
IN Tode, Shingo; Fujimoto, Hiroyuki; Takahashi, Yasufumi; Kinoshita, Akira; Hasegawa, Kazuhiro; Fujitani, Shin
PA Sanyo Electric Co., Japan
SO U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20060105241 | A1 | 20060518 | US 2005-168380 | 20050629 <-- |
| | US 7435510 | B2 | 20081014 | | |
| | JP 2006164934 | A | 20060622 | JP 2005-60288 | 20050304 <-- |
| | KR 2006048698 | A | 20060518 | KR 2005-57003 | 20050629 <-- |
| | CN 1773765 | A | 20060517 | CN 2005-10080727 | 20050630 <-- |
| PRAI | JP 2004-329406 | A | 20041112 <-- | | |
| | JP 2005-60288 | A | 20050304 <-- | | |

AB A nonaq. electrolyte secondary battery comprises a pos. electrode containing a pos. active material, a neg. electrode containing a neg. active material and a nonaq. electrolyte, wherein a lithium transition metal complex oxide A formed by allowing LiCoO2 to contain at least both of Zr and Mg and a lithium transition metal complex oxide B having a layered structure and containing at least both of Mn and Ni as transition metals and containing Mo are mixed and used as the pos. active material.

IT 372492-00-7P, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(Zr-doped; nonaq. electrolyte secondary battery)
RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

IT 756879-33-1 886752-61-0 896752-62-1
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte secondary battery)
RN 756879-33-1 HCAPLUS
CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

RN 886752-61-0 HCAPLUS
CN Cobalt lithium magnesium titanium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Ti | x | 7440-32-6 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 886752-62-1 HCAPLUS
CN Cobalt lithium magnesium tin zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Sn | x | 7440-31-5 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

IT 532934-38-6, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2)
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. electrolyte secondary battery)
RN 532934-38-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RE.CNT 30 THERE ARE 30 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 14 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:1265113 HCAPLUS Full-text
DN 143:480485
TI Cathode active material and nonaqueous electrolyte secondary battery
IN Sato, Takashi; Yamamoto, Yoshikatsu; Hosoya, Yosuke

PA Sony Corporation, Japan
SO U.S. Pat. Appl. Publ., 15 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | US 20050266315 | A1 | 20051201 | US 2005-132859 | 20050518 | <-- |
| | US 7214449 | B2 | 20070508 | | | |
| | JP 2005339970 | A | 20051208 | JP 2004-156688 | 20040526 | <-- |
| | JP 4172423 | B2 | 20081029 | | | |
| | KR 2006049435 | A | 20060519 | KR 2005-43044 | 20050523 | <-- |
| | CN 1702890 | A | 20051130 | CN 2005-10073872 | 20050525 | <-- |
| | CN 100340017 | C | 20070926 | | | |
| PRAI | JP 2004-156688 | A | 20040526 | <-- | | |

AB A cathode active material and non-aqueous electrolyte secondary battery are disclosed. The non- aqueous electrolyte secondary battery includes a pos. electrode and a neg. electrode which are electrochem. doped and dedoped with lithium; and an electrolyte disposed between the pos. electrode and the neg. electrode. The pos. electrode contains a cathode active material including a mixture of: a first cathode active material represented by a general formula: LitCoMsO2 where M represents a metal, 0≤s≤0.03, and 0.05≤t≤1.15; and a second cathode active material represented by a general formula: LixNi(1-y-z)CoyMnzAaO2 where A represents a metal, 0.05≤x≤1.15, 0.15≤y+z≤0.70, 0.05≤z≤0.40, and 0≤a≤0.10.

IT 345664-06-4P, Cobalt lithium magnesium oxide (CoLiMg0.03O2) 681160-59-8P, Cobalt lithium manganese nickel oxide (Co0.3LiMn0.4Ni0.3O2) 869789-30-0P, Cobalt lithium manganese nickel oxide (Co0.1Li1.05Mn0.05Ni0.85O2) 869789-31-1P, Cobalt lithium manganese nickel oxide (Co0.65Li1.05Mn0.05Ni0.3O2) 869789-33-3P, Cobalt lithium manganese nickel oxide (Co0.3Li1.05Mn0.4Ni0.3O2) 869789-35-5P, Aluminum cobalt lithium magnesium oxide (Al0.02CoLiMg0.02O2)
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(cathode active material and nonaq. electrolyte secondary battery)

RN 345664-06-4 HCAPLUS
CN Cobalt lithium magnesium oxide (CoLiMg0.03O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 1 | 7440-48-4 |
| Mg | 0.03 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 681160-59-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.3LiMn0.4Ni0.3O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.3 | 7440-48-4 |
| Ni | 0.3 | 7440-02-0 |

| | | |
|---|---|---|
| Mn | 0.4 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 869789-30-0 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1Li1.05Mn0.05Ni0.85O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.85 | 7440-02-0 |
| Mn | 0.05 | 7439-96-5 |
| Li | 1.05 | 7439-93-2 |

RN 869789-31-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.65Li1.05Mn0.05Ni0.3O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.65 | 7440-48-4 |
| Ni | 0.3 | 7440-02-0 |
| Mn | 0.05 | 7439-96-5 |
| Li | 1.05 | 7439-93-2 |

RN 869789-33-3 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.3Li1.05Mn0.4Ni0.3O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.3 | 7440-48-4 |
| Ni | 0.3 | 7440-02-0 |
| Mn | 0.4 | 7439-96-5 |
| Li | 1.05 | 7439-93-2 |

RN 869789-35-5 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.02CoLiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 1 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.02 | 7429-90-5 |

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 15 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:1076074 HCAPLUS Full-text

DN 143:369992
TI Secondary nonaqueous electrolyte battery
IN Takahashi, Yasufumi; Kinoshita, Akira; Tode, Shingo; Hasegawa, Kazuhiro; Fujimoto, Hiroyuki; Nakane, Ikuro; Fujitani, Shin
PA Sanyo Electric Co., Ltd., Japan
SO PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2005093880 | A1 | 20051006 | WO 2005-JP3723 | 20050304 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| | RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| | JP 2005317499 | A | 20051110 | JP 2004-320394 | 20041104 <-- |
| | EP 1734601 | A1 | 20061220 | EP 2005-719995 | 20050304 <-- |
| | R: DE, FR, GB | | | | |
| | CN 1934733 | A | 20070321 | CN 2005-80009615 | 20050304 <-- |
| | US 20070196736 | A1 | 20070823 | US 2006-594459 | 20060926 <-- |
| | KR 2006132968 | A | 20061222 | KR 2006-720099 | 20060928 <-- |
| PRAI | JP 2004-94475 | A | 20040329 | <-- | |
| | JP 2004-320394 | A | 20041104 | <-- | |
| | WO 2005-JP3723 | W | 20050304 | <-- | |

AB The battery uses a cathode active mass comprising a substituted LiCoO2, containing at least Zr and Mg, and a layer structured Li transition metal oxide containing at least Mn and/or Ni. Preferably, the substituted LiCoO2 is LiaCo1-x-y-zZrxMgyMzO2, where M = Al, Ti, and/or Sn, za ≤1.1, x >0, Y >0, Z >0 and (x+y+z)≤0.03; and the Li transition metal oxide is LibMnsNitCouO2, where b ≤1.2, 0 <s ≤0.5, 0 <t ≤0.5, u ≥0, and (ss+t+u) =1.

IT 372492-00-7, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) 866331-36-4, Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O3)
RL: DEV (Device component use); USES (Uses)
(mixts. of lithium transition metal oxides for secondary lithium battery cathodes)
RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 866331-36-4 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.34LiMn0.33Ni0.33O3) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 3 | 17778-80-2 |
| Co | 0.34 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 16 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2005:1049231 HCAPLUS Full-text
DN 143:349928
TI Nonaqueous electrolyte secondary batteries with lithium mixed oxide cathodes
IN Matsui, Toru; Deguchi, Masaki; Yoshizawa, Hiroshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2005267911 | A | 20050929 | JP 2004-75110 | 20040316 <-- |
| PRAI JP 2004-75110 | | 20040316 <-- | | |

AB The batteries comprise cathodes including LiAO2 (A is ≥2 selected from Mn, Co, and Ni) or LiB1-wCwO2 (B = Mn, Co, and/or Ni; C = Mg, Ca, Sr, Al, and/or Ga; w = 0.005-0.1) as active materials, anodes, and nonaq. electrolytes including a main solvent, solute, and diallyl carbonate as additive. The electrolytes may also contain vinylene carbonate as additive. The batteries show excellent cycle performance and prevented emission of gases at high temperature
IT 101920-93-8, Cobalt lithium nickel oxide (Co0.5LiNi0.5O2) 113066-89-0, Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) 118819-08-2, Cobalt lithium manganese oxide (Co0.5LiMn0.5O2) 142447-10-7, Cobalt lithium manganese oxide (Co0.75LiMn0.25O2) 143623-49-8, Cobalt lithium nickel oxide (Co0.25LiNi0.75O2) 144419-56-7, Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) 149319-02-8, Cobalt lithium nickel oxide (Co0.75LiNi0.25O2) 152066-41-6, Cobalt lithium manganese nickel oxide (Co0.45LiMn0.1Ni0.45O2) 198213-70-6, Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) 248581-94-4, Cobalt lithium manganese oxide (Co0.5Li2Mn1.5O4) 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 465890-05-3, Cobalt lithium manganese nickel oxide (Co0.1LiMn0.45Ni0.45O2) 865649-43-0, Cobalt lithium manganese nickel oxide (Co0.45LiMn0.45Ni0.1O2)
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(cathode active material; secondary batteries with lithium mixed oxide cathodes and nonaq. electrolytes containing diallyl carbonate as additives)
RN 101920-93-8 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.5LiNi0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 113066-89-0 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 118819-08-2 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.5LiMn0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Mn | 0.5 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 142447-10-7 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.75LiMn0.25O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.75 | 7440-48-4 |
| Mn | 0.25 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 143623-49-8 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.25LiNi0.75O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.25 | 7440-48-4 |
| Ni | 0.75 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 144419-56-7 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |

| | | |
|---|---|---|
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 149319-02-8 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.75LiNi0.25O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.75 | 7440-48-4 |
| Ni | 0.25 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 152066-41-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.45LiMn0.1Ni0.45O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.45 | 7440-48-4 |
| Ni | 0.45 | 7440-02-0 |
| Mn | 0.1 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 248581-94-4 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.5Li2Mn1.5O4) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 4 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Mn | 1.5 | 7439-96-5 |
| Li | 2 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |

| | | |
|---|---|---|
| Li | 1 | 7439-93-2 |

RN 405890-05-3 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1LiMn0.45Ni0.4502) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.45 | 7440-02-0 |
| Mn | 0.45 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 865649-43-0 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.45LiMn0.45Ni0.102) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.45 | 7440-48-4 |
| Ni | 0.1 | 7440-02-0 |
| Mn | 0.45 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 17 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:1020204 HCAPLUS Full-text
DN 142:9225
TI Nonaqueous electrolyte secondary battery and charge/discharge system thereof
IN Watanabe, Shoichiro; Nagayama, Masatoshi; Kuranaka, So
PA Matsushita Electric Industrial Co. Ltd., Japan
SO PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI WO 2004102701 | A1 | 20041125 | WO 2004-JP6620 | 20040511 <-- |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| JP 2004342500 | A | 20041202 | JP 2003-138849 | 20030516 <-- |
| CN 1735985 | A | 20060215 | CN 2004-80011814 | 20040511 <-- |
| CN 100373663 | C | 20080305 | | |
| EP 1655793 | A1 | 20060510 | EP 2004-732213 | 20040511 <-- |
| R: DE, FR, GB | | | | |

US 20060194109 A1 20060831 US 2005-552920 20051011 <--
KR 790270 B1 20080102 KR 2005-720899 20051103 <--
PRAI JP 2003-138849 A 20030516 <--
WO 2004-JP6620 W 20040511 <--

AB The disclosed nonaq. electrolyte secondary comprises a pos. electrode composed of a pos. electrode mix layer, a neg. electrode composed of a neg. electrode mix layer , a separator or a lithium ion-conductive porous film interposed between the pos. electrode and the neg. electrode, and a lithium ion-conductive nonaq. electrolyte. The pos. electrode mix layer contains a pos. electrode active material composed of a lithium-transition metal composite oxide, and the lithium-transition metal composite oxide contains lithium, a transition metal and a metal other than the transition metal. The neg. electrode mix layer contains a neg. electrode active material composed of a carbon material. In the region where the pos. electrode mix layer and the neg. electrode mix layer face each other, the ratio (R: Wp/Wn) of the weight of the pos. electrode active material (Wp) contained in the pos. electrode mix layer per unit area to the weight of the neg. electrode active material (Wn) contained in the neg. electrode mix layer per unit area is 1.3-2.2. In the normal operation, the charging final voltage of this nonaq . electrolyte secondary battery is set at 4.25-4.5 V.

IT 144419-56-7, Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) 372491-83-3, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94LiMg0.05O2) 372492-00-7, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) 405390-05-3, Cobalt lithium manganese nickel oxide (Co0.1LiMn0.45Ni0.45O2) 478814-69-6 , Aluminum cobalt lithium magnesium oxide (Al0.05Co0.9LiMg0.05O2) 719276-54-7, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.01Mg0.05O2) 798575-07-2, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.02Mg0.05O2) 798575-08-3 , Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.03Mg0.05O2) 798575-10-7, Aluminum cobalt lithium magnesium oxide (Al0.05Co0.85LiMg0.1O2) 798575-11-8, Aluminum cobalt lithium magnesium oxide (Al0.02Co0.88LiMg0.1O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(cathode active substance for lithium secondary battery)

RN 144419-56-7 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 372491-83-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.94 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 405890-05-3 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1LiMn0.45Ni0.4502) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.45 | 7440-02-0 |
| Mn | 0.45 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 478814-69-6 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.05Co0.9LiMg0.0502) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.05 | 7429-90-5 |

RN 719276-54-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.01Mg0.0502) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.94 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1.01 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 798575-07-2 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.02Mg0.0502) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |

| | | |
|---|---|---|
| Co | 0.94 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1.02 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 798575-08-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94Li1.03Mg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.94 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1.03 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 798575-10-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.05Co0.85LiMg0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.85 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.05 | 7429-90-5 |

RN 798575-11-8 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.02Co0.88LiMg0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.88 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.02 | 7429-90-5 |

RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 18 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:796473 HCAPLUS Full-text
DN 141:263471
TI Cathode active material for nonaqueous electrolyte secondary battery
IN Takahashi, Takeshi; Oba, Takeshi; Fujino, Kenji; Tokuno, Junichi; Morizaki, Masuhiro; Kondo, Takeyuki; Seyama, Jun
PA Nichia Corporation, Japan
SO Eur. Pat. Appl., 54 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | EP 1463132 | A2 | 20040929 | EP 2004-7076 | 20040324 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK | | | | |
| | JP 2005050712 | A | 20050224 | JP 2003-282341 | 20030730 <-- |
| | JP 2005123111 | A | 20050512 | JP 2003-358885 | 20031020 <-- |
| | JP 2005190900 | A | 20050714 | JP 2003-432856 | 20031226 <-- |
| | JP 2004311408 | A | 20041104 | JP 2004-42699 | 20040219 <-- |
| | TW 286849 | B | 20070911 | TW 2004-93105565 | 20040303 <-- |
| | KR 2004084643 | A | 20041006 | KR 2004-17292 | 20040315 <-- |
| | US 20040229123 | A1 | 20041118 | US 2004-806206 | 20040323 <-- |
| | CN 1532966 | A | 20040929 | CN 2004-10007990 | 20040325 <-- |
| | CN 100355125 | C | 20071212 | | |
| PRAI | JP 2003-83806 | A | 20030325 <-- | | |
| | JP 2003-282341 | A | 20030730 <-- | | |
| | JP 2003-358885 | A | 20031020 <-- | | |
| | JP 2003-432856 | A | 20031226 <-- | | |

AB Disclosed is a pos. electrode active material for a nonaq. electrolyte secondary battery having at least a lithium-transition metal composite oxide of a layer structure, in which an existence ratio of at least one selected from the group consisting of elements which may become tetravalent and magnesium is 20% or more on a surface of the lithium-transition metal composite oxide. By use of this pos. electrode active material, a nonaq. electrolyte secondary battery having excellent battery characteristics, specifically, having excellent high rate characteristics, cycle characteristics, low-temperature characteristics, thermal stability, and the like, under the even more harsh environment for use can be realized.

IT 131344-56-4, Cobalt lithium nickel oxide 182442-95-1, Cobalt lithium manganese nickel oxide
RL: DEV (Device component use); USES (Uses)
(cathode active material for nonaq. electrolyte secondary battery)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

IT 147683-99-6P, Cobalt lithium zirconium oxide 187144-48-5P , Cobalt lithium magnesium oxide 642999-33-5P, Cobalt lithium magnesium zirconium oxide 756879-33-1P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP

(Preparation); USES (Uses)
(cathode active material for nonaq. electrolyte secondary battery)

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 642999-33-5 HCAPLUS
CN Cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 756879-33-1 HCAPLUS
CN Aluminum cobalt lithium magnesium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

L88 ANSWER 19 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:584872 HCAPLUS Full-text
DN 141:126312
TI Nonaqueous-electrolyte secondary battery with cathode containing acetylene black
IN Miyazaki, Shinya
PA Sanyo Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 2004207034 | A | 20040722 | JP 2002-374598 | 20021225 <-- |
| | JP 4145138 | B2 | 20080903 | | |
| PRAI | JP 2002-374598 | | 20021225 <-- | | |

AB The claimed battery is equipped with a cathode containing a Li ion-intercalating active mass and (1) a first acetylene black having sp. surface area 35-45 m2/g and (2) a second acetylene black having sp. surface area 65-75 m2/g as conducting agents, where each content of the first acetylene black and the second acetylene black is 1-2 weight% to the cathode active mass. The battery provides excellent high-rate discharge capacity and long cycle life.

IT 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 579501-01-2, Cobalt lithium zirconium oxide (Co0.9LiZr0.1O2)
RL: DEV (Device component use); USES (Uses)
(cathode; nonaq.-electrolyte secondary battery with cathode containing acetylene black)

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 579501-01-2 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.9LiZr0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.1 | 7440-67-7 |
| Co | 0.9 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 20 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:533748 HCAPLUS Full-text
DN 141:74296
TI Nonaqueous electrolyte rechargeable battery
IN Nagayama, Masatoshi; Yoshizawa, Hiroshi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO U.S. Pat. Appl. Publ., 9 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20040126661 | A1 | 20040701 | US 2003-730049 | 20031209 <-- |
| | US 7255963 | B2 | 20070814 | | |

JP 2004207120 A 20040722 JP 2002-376664 20021226 <--
JP 3844733 B2 20061115
PRAI JP 2002-376664 A 20021226 <--
AB A nonaq. electrolyte rechargeable battery includes: (a) a pos. electrode capable of charging and discharging lithium; (b) a neg. electrode capable of charging and discharging lithium; (c) a separator or a lithium ion conductive layer interposed between the pos. electrode and the neg. electrode; and (d) a lithium ion conductive nonaq. electrolyte, wherein the pos. electrode contains a mixture of a first pos. electrode active material and a second pos. electrode active material, the first pos. electrode active material includes lithium oxide containing manganese, the lithium oxide further contains aluminum and/or magnesium, and the second pos. electrode active material includes LixCo1-y-zMgyAlzO2 where 1≤x≤1.03, 0.005≤y≤0.1 and 0.001≤z<0.02.
IT 142447-12-9, Cobalt lithiummanganese oxide Co0.95LiMn0.05O2
372491-83-3, Aluminum cobalt lithium magnesium oxide
Al0.01Co0.94LiMg0.05O2 642999-49-3, Aluminum cobalt lithium magnesium oxide 709654-49-9, Cobalt lithium magnesium titanium oxide (Co0.94LiMg0.05Ti0.01O2)
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte rechargeable battery)
RN 142447-12-9 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.95LiMn0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |
| Mn | 0.05 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 372491-83-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.94LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.94 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 642999-49-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

RN 709654-49-9 HCAPLUS
CN Cobalt lithium magnesium titanium oxide (Co0.94LiMg0.05Ti0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.94 | 7440-48-4 |
| Ti | 0.01 | 7440-32-6 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 21 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:161245 HCAPLUS Full-text
DN 140:166823
TI Nonaqueous electrolyte secondary battery
IN Hideki, Kitao; Takao, Inoue; Katsunori, Yanagida; Naoya, Nakanishi; Atsuhiro, Funahashi; Toshiyuki, Nohma
PA Sanyo Electric Co., Ltd., Japan
SO Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | EP 1391959 | A2 | 20040225 | EP 2003-18837 | 20030819 <-- |
| | EP 1391959 | A3 | 20061213 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| | JP 2004139743 | A | 20040513 | JP 2002-297739 | 20021010 <-- |
| | KR 2004018154 | A | 20040302 | KR 2003-57443 | 20030820 <-- |
| | US 20040110064 | A1 | 20040610 | US 2003-604826 | 20030820 <-- |
| | US 7198871 | B2 | 20070403 | | |
| PRAI | JP 2002-240610 | A | 20020821 | <-- | |
| | JP 2002-297739 | A | 20021010 | <-- | |

AB In a nonaq. electrolyte secondary battery provided with a pos. electrode, a neg. electrode, and a nonaq. electrolyte solution, a pos. electrode active material is a mixture of lithium-manganese composite oxide and at least one of lithium-nickel composite oxide represented by: LiNiaM11-aO2 and lithium-cobalt composite oxide represented by the general formula LiCobM21-bO2, and the nonaq. electrolyte solution contains at least a saturated cyclic carbonic acid ester and an unsatd. cyclic carbonic acid ester having double bond of carbon where content by amount of the unsatd. cyclic carbonic acid ester having double bond of carbon is in a range of 1.0 + 10-8 to 2.4 + 10-4 g per pos. electrode capacity 1 mA-h.

IT 131344-56-4, Cobalt Lithium nickel oxide 147683-99-6, Cobalt Lithium zirconium oxide 182442-95-1, Cobalt Lithium manganese nickel oxide 187148-48-5, Cobalt Lithium magnesium oxide 214536-41-1, Cobalt lithium manganese oxide 217309-43-8, Cobalt lithium manganese nickel oxide Co0.3LiMn0.3Ni0.4O2
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte secondary battery)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 217309-43-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.3LiMn0.3Ni0.4O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.3 | 7440-48-4 |
| Ni | 0.4 | 7440-02-0 |

| | | |
|---|---|---|
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 22 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:78030 HCAPLUS Full-text
DN 140:131122
TI Nonaqueous-electrolyte battery with cathode containing plural lithium mixed oxides
IN Ukawa, Shinsaku
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2004031165 | A | 20040129 | JP 2002-186698 | 20020626 <-- |
| PRAI JP 2002-186698 | | 20020626 <-- | | |

AB The claimed battery is equipped with a cathode containing LixCo1-yMyO2 (M = Al, Mg, or Mn; 0 < x ≤ 1; 0 < y ≤ 0.5) and 0.1-50 weight% LixNi1-zCozMyO2 (M = Al, Mg, or Mn; 0 < x ≤ 1; 0 < y ≤ 0.5; 0 < z ≤ 0.5). The battery provides high capacity and tolerance for overdischarge.
IT 142447-14-1, Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) 203005-82-7, Cobalt lithium manganese nickel oxide (Co0.15LiMn0.05Ni0.8O2) 372492-00-7, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) 649560-56-5, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.97LiMg0.02O2)
RL: DEV (Device component use); USES (Uses)
(nonaq.-electrolyte battery with cathode containing plural lithium mixed oxides)
RN 142447-14-1 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.98LiMn0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mn | 0.02 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 203005-82-7 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.15LiMn0.05Ni0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Mn | 0.05 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA

INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 649560-56-5 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.97LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.97 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

L88 ANSWER 23 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:757156 HCAPLUS Full-text
DN 139:248085
TI Nonaqueous electrolyte secondary battery
IN Inoue, Takao; Yanagida, Katsunori; Nakanishi, Naoya; Funahashi, Atsuhiro; Nohma, Toshiyuki
PA Japan
SO U.S. Pat. Appl. Publ., 8 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20030180618 | A1 | 20030925 | US 2003-392083 | 20030320 <-- |
| | JP 2003282055 | A | 20031003 | JP 2002-83153 | 20020325 <-- |
| PRAI | JP 2002-83153 | A | 20020325 <-- | | |

AB The invention relates to a nonaq. electrolyte secondary battery having a pos. electrode including a pos. electrode active material, a neg. electrode and a nonaq. electrolyte comprising a solute dissolved in a solvent, the pos. electrode active material is a mixture of a lithium-manganese composite oxide and a lithium-nickel composite oxide represented by LiNiaM11-aO2 (M1 being at least one element selected from the group consisting of B, Mg, Al, Ti, Mn, V, Fe, Co, Cu, Zn, Ga, Y, Zr, Nb, Mo and In, and a being 0<a≤1) and/or a lithium-cobalt composite oxide represented by LiCobM21-bO2 (M2 being at least one element selected from the group consisting of B, Mg, Al, Ti, Mn, V, Fe, Ni, Cu, Zn, Ga, Y, Zr, Nb, Mo and In, and b being 0<b≤1), and the nonaq. electrolyte contains a phosphoric ester and an ether or an ester having a halogen substituted Ph.
IT 135573-53-4, Cobalt lithium nickel oxide Co0-1LiNi0-1O2 217389-43-8, Cobalt lithium manganese nickel oxideCo0.3LiMn0.3Ni0.4O2 252875-65-9, Cobalt lithium manganese oxide ((Co,Mn)LiO2) 527744-92-9, Cobalt lithium magnesium oxide ((Co,Mg)LiO2) 600177-64-8, Cobalt lithium zirconium oxide ((Co,Zr)LiO2)

RL: DEV (Device component use); USES (Uses)
(Nonaq. electrolyte secondary battery)

RN 135573-53-4 HCAPLUS
CN Cobalt lithium nickel oxide ((Co,Ni)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Ni | 0 - 1 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 217309-43-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.3LiMn0.3Ni0.4O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.3 | 7440-48-4 |
| Ni | 0.4 | 7440-02-0 |
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 253875-65-9 HCAPLUS
CN Cobalt lithium manganese oxide ((Co,Mn)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Mn | 0 - 1 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 527744-92-9 HCAPLUS
CN Cobalt lithium magnesium oxide ((Co,Mg)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Mg | 0 - 1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 600177-64-8 HCAPLUS
CN Cobalt lithium zirconium oxide ((Co,Zr)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0 - 1 | 7440-67-7 |
| Co | 0 - 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 24 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:827863 HCAPLUS Full-text
DN 137:313559
TI Secondary nonaqueous-electrolyte battery with cathode containing two kinds of lithium mixed oxides
IN Watanabe, Shoichiro; Nagayama, Masatoshi; Takeno, Mitsuhiro
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2002319398 | A | 20021031 | JP 2001-122449 | 20010420 <-- |
| PRAI JP 2001-122449 | | 20010420 <-- | | |

AB The title battery is equipped with a cathode containing a first active material LixCoyMwOz (x = 0.9-1.10; y = 0.85-0.98; w = 0.02-0.15; z = 1.8-2.2; M = Al, Cu, Zn, Mg, Ca, Ba, and/or Sr) and a second active material LiANiBM'COD (A = 0.3-1.02; B = 0.5-0.98; C = 0.02-0.5; D = 1.8-2.2; M' = Co, Mn, Cr, Fe, V, and/or Al). Also claimed is an overdischarging prevention circuit-free system equipped with the battery. The battery has high discharge capacity at low temperature, recovery after overdischarging, and thermal stability while overcharging.

IT 143623-51-2, Cobalt lithium nickel oxide (Co0.15LiNi0.85O2)
198213-74-0, Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2)
441310-71-0, Cobalt lithium magnesium oxide (Co0.9Li0.95Mg0.15O2)
RL: DEV (Device component use); USES (Uses)
(cathode active material; cathode containing two kinds of lithium mixed oxides for nonaq. battery in overdischarging prevention circuit-free system)

RN 143623-51-2 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.15LiNi0.85O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ni | 0.85 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 198213-74-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 441310-71-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9Li0.95Mg0.15O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |

| | | | |
|---|---|---|---|
| Co | \| | 0.9 | \| 7440-48-4 |
| Mg | \| | 0.15 | \| 7439-95-4 |
| Li | \| | 0.95 | \| 7439-93-2 |

L88 ANSWER 25 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:669535 HCAPLUS Full-text
DN 137:203960
TI Lithium secondary battery
IN Sunagawa, Takuya; Takahashi, Masatoshi; Miyamoto, Yoshikumi
PA Sanyo Electric Co., Ltd., Japan
SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | EP 1237213 | A2 | 20020904 | EP 2002-3999 | 20020222 <-- |
| | EP 1237213 | A3 | 20051123 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | | |
| | JP 2002251996 | A | 20020906 | JP 2001-47891 | 20010223 <-- |
| | TW 543227 | B | 20030721 | TW 2002-91102885 | 20020220 <-- |
| | US 20020164528 | A1 | 20021107 | US 2002-79590 | 20020222 <-- |
| | US 6818351 | B2 | 20041116 | | |
| | KR 794051 | B1 | 20080110 | KR 2002-9451 | 20020222 <-- |
| | CN 1372341 | A | 20021002 | CN 2002-105277 | 20020225 <-- |
| | CN 1238917 | C | 20060125 | | |
| | HK 1049917 | A1 | 20060623 | HK 2003-101998 | 20030318 <-- |
| PRAI | JP 2001-47891 | A | 20010223 <-- | | |

AB A lithium secondary battery having improved load characteristics such as high rate discharge properties is obtained by using a mixed cathode active material comprising a mixture of lithium-containing manganese oxide having a spinel type crystal structure and lithium-containing cobalt oxide, wherein the cathode collector retains mixed cathode active material in such a manner that the mixing ratio of lithium cobaltate X thereof should fall in a range of $0.1 \leq X \leq 0.9$, that the bulk d. Y (g/cm3) of the cathode mixed agent should be confined in a range satisfying the relation of $0.5X + 2.7 \leq Y \leq 0.6X + 3.3$, and that the mean particle diameter of spinel type lithium manganate should be greater than the mean particle diameter of lithium cobaltate.

IT 214536-41-1, Cobalt Lithium manganese oxide 452332-02-4,
Cobalt lithium magnesium oxide (Co0.9-1LiMg0-0.1O2) 452332-10-4,
Cobalt lithium nickel oxide (Co0.9-1LiNi0-0.1O2)
RL: DEV (Device component use); USES (Uses)
(lithium secondary battery having improved load characteristics)

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 452332-02-4 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9-1LiMg0-0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 - 1 | 7440-48-4 |
| Mg | 0 - 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 452332-10-4 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.9-1LiNi0-0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 - 1 | 7440-48-4 |
| Ni | 0 - 0.1 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 26 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2000:628414 HCAPLUS Full-text
DN 133:180409
TI Secondary nonaqueous electrolyte lithium batteries
IN Sunagawa, Takuya; Fujimoto, Hiroyuki; Ohshita, Ryuji; Fujitani, Shin
PA Sanyo Electric Co., Ltd., Japan
SO PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2000052773 | A1 | 20000908 | WO 2000-JP731 | 20000209 <-- |
| | W: CA, HU, US | | | | |
| | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE | | | | |
| | JP 2000315503 | A | 20001114 | JP 1999-358615 | 19991217 <-- |
| | JP 3869605 | B2 | 20070117 | | |
| | CA 2365562 | A1 | 20000908 | CA 2000-2365562 | 20000209 <-- |
| | CA 2365562 | C | 20070710 | | |
| | EP 1174937 | A1 | 20020123 | EP 2000-902892 | 20000209 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI | | | | |
| | HU 2002000246 | A2 | 20020729 | HU 2002-246 | 20000209 <-- |
| | EP 1885011 | A2 | 20080206 | EP 2007-10817 | 20000209 <-- |
| | EP 1885011 | A3 | 20080220 | | |
| | R: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE | | | | |
| | US 6746800 | B1 | 20040608 | US 2001-914653 | 20010831 <-- |
| PRAI | JP 1999-52741 | A | 19990301 | <-- | |
| | JP 1999-358615 | A | 19991217 | <-- | |
| | EP 2000-902892 | A3 | 20000209 | <-- | |
| | WO 2000-JP731 | W | 20000209 | <-- | |

AB The batteries use cathodes comprised of a mixture of a spinel type 3rd metal containing Li Mn oxide and LiaMbNicCodO2; where M = Al, Mn, Mg, and/or Ti; 0

<a <1.3; 0.02 ≤b ≤0.3;0.02 ≤[d/(c+d)] ≤0.9; and (b+c+d) =1. The 3rd metal containing oxide is preferably LixMn2-yM'yO4+z, where M' = Al, Co, Ni, Mg, and/or Fe; 0 ≤x≤1.2; 0 <y ≤0.1, -0.2 ≤z ≤0.2.

IT 198213-74-0, Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2)
223923-05-5, Cobalt lithium manganese nickel oxide (Co0.3LiMn0.1Ni0.6O2)
RL: DEV (Device component use); USES (Uses)
(mixts. of substituted spinel type lithium manganese oxide and lithium cobalt nickel oxide for secondary lithium battery cathodes)

RN 198213-74-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 223923-05-5 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.3LiMn0.1Ni0.6O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.3 | 7440-48-4 |
| Ni | 0.6 | 7440-02-0 |
| Mn | 0.1 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L88 ANSWER 27 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2000:362771 HCAPLUS Full-text
DN 133:7030
TI Secondary nonaqueous-electrolyte batteries with cathodes containing coated lithium mixed oxides
IN Kitano, Shinya
PA Japan Storage Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 2000149950 | A | 20000530 | JP 1998-326431 | 19981117 <-- |
| PRAI | JP 1998-326431 | | 19981117 | <-- | |

AB The batteries are equipped with cathodes containing particles of LiNi1-y-zCoyMzO2 (y = 0-0.25; z = 0-0.15; M is a metal other than Co, Ni) coated with LiCo1-xMgxO2 (0.01 ≤ x < 0.1) having single- layer structure. The batteries have high capacity and high-rate discharge performance.

IT 113966-39-0P, Cobalt lithium nickel oxide (Co0.2LiNi0.8O2)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP

(Preparation); USES (Uses)
(coated lithium mixed oxides in cathodes for batteries)

RN 113066-89-0 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

IT 198213-69-3, Cobalt Lithium Magnesium oxide (Co0.99LiMg0.01O2)
270920-57-5, Cobalt lithium magnesium oxide (Co0.9-0.99LiMg0.01-0.1O2)
RL: DEV (Device component use); USES (Uses)
(coatings; coated lithium mixed oxides in cathodes for batteries)

RN 198213-69-3 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.99LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.99 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 270920-57-5 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9-0.99LiMg0.01-0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 - 0.99 | 7440-48-4 |
| Mg | 0.01 - 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

IT 144419-56-7P, Cobalt Lithium Magnesium oxide (Co0.95LiMg0.05O2)
198213-71-7P, Cobalt Lithium Magnesium oxide (Co0.97LiMg0.03O2)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(coatings; coated lithium mixed oxides in cathodes for batteries)

RN 144419-56-7 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 198213-71-7 HCAPLUS

CN Cobalt lithium magnesium oxide (Co0.97LiMg0.03O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.97 | 7440-48-4 |
| Mg | 0.03 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 28 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2000:32604 HCAPLUS Full-text
DN 132:80911
TI Cathode active mass containing lithium cobalt mixed oxide for secondary nonaqueous-electrolyte batteries and batteries using it
IN Takimoto, Yasuyuki; Hiyama, Susumu; Yamashita, Junichi
PA Seimi Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2000012022 | A | 20000114 | JP 1998-176323 | 19980623 <-- |
| PRAI JP 1998-176323 | | 19980623 <-- | | |

AB The cathode active mass contains LixCoO2 ($0 < x \leq 1.25$) showing spin concentration ≤1 + 1018 nos./g measured by ESR at g = 2.15. Also claimed is the cathode active mass containing LixMyCo1-yO2 ($0 < x \leq 1.25$; $0 < y \leq 0.25$; M = Ti, V, Zr, Cr, Mn, Ni, Fe, Nb, Ta, Sn, Sb, Bi, Mg, Ca, Sr, Ba, Ce, Pr, and/or Tb) showing spin concentration ≤1 + 1018 nos./g measured by ESR at g = 2.15. The batteries are equipped with Li-intercalating anodes and cathodes containing the above active mass. The batteries have good heat stability during charging-discharging.
IT 131344-56-4, Cobalt Lithium Nickel oxide 147683-99-6, Cobalt Lithium Zirconium oxide 198213-70-6, Cobalt Lithium Magnesium oxide (Co0.98LiMg0.02O2) 214536-41-1, Cobalt Lithium Manganese oxide
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(lithium cobalt mixed oxides having specified electron spin concentration in cathodes for nonaq. batteries)
RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

L88 ANSWER 29 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1998:586185 HCAPLUS Full-text
DN 129:233157
OREF 129:47379a,47382a
TI Bilayered granular lithium mixed oxide compositions and lithium ion secondary batteries using them as cathodes
IN Aoki, Masashi; Fukai, Kyoshi; Nakao, Hitoshi
PA Sakai Chemical Industry Co., Ltd., Sakai, Japan
SO Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 10236826 | A | 19980908 | JP 1997-84293 | 19970225 <-- |
| | JP 4161382 | B2 | 20081008 | | |
| PRAI | JP 1997-84293 | | 19970225 <-- | | |

AB The granular compns. consist of Li Ni mixed oxide cores and Li Co mixed oxide coating layers, whereas Co/(Ni + Co) atomic ratio is 0.2-1 at a part between the grain surfaces and 0.1 μm depth from the surfaces. Preferably, the cores are LipNi1-xAxOy (A = B, Mg, Al, Si, Sc, Ti, V, Cr, Mn, Fe, Co, Cu, Zn, Ga, Y, Zr, Nb, Mo, Ru, Sn, Sb, La, Ce, Pr, Nb, Hf, Ta, Pb; p = 0.90-1.10; x = 0-0.25; y = 1.825-2.3). Preferably, the coating layers are LiqCo1-aZaOb (Z = B, Mg, Al, Si, Sc, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, Ga, Y, Zr, Nb, Mo, Ru, Sn, Sb, La, Ce, Pr, Nd, Hf, Ta, Pb; q = 0.90-1.10; a = 0-0.25; b = 1.825-2.3). Li ion secondary batteries use the compns. as cathodes. The batteries inhibit reaction between the cathodes and nonaq. electrolytes and show improved high-temperature stability.
IT 157925-46-7P, Cobalt lithium magnesium oxide (Co0.9LiMg0.1O1.95)

199926-74-4P, Cobalt lithium nickel oxide (Co0.85LiNi0.15O2)
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(coatings; core-sheath Li mixed oxide grains for Li ion secondary battery cathodes)
RN 157925-46-7 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9LiMg0.1O1.95) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 1.95 | 17778-80-2 |
| Co | 0.9 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 199926-74-4 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.85LiNi0.15O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.85 | 7440-48-4 |
| Ni | 0.15 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

IT 143623-51-2P, Cobalt lithium nickel oxide (Co0.15LiNi0.85O2)
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cores; core-sheath Li mixed oxide grains for Li ion secondary battery cathodes)
RN 143623-51-2 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.15LiNi0.85O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ni | 0.85 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

L88 ANSWER 30 OF 30 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1995:804336 HCAPLUS Full-text
DN 123:204334
OREF 123:36303a,36306a
TI Nonaqueous secondary battery containing lithium intercalated mixed tin oxide anodes for suppressed lithium dendrite growth and improved characteristics
IN Idota, Yoshio; Mishima, Masayuki; Miyaki, Yukio; Kubota, Tadahiko; Miyasaka, Tsutomu
PA Fuji Photo Film Co., Ltd., Japan
SO Eur. Pat. Appl., 48 pp
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

| | | | | | |
|---|---|---|---|---|---|
| PI | EP 651450 | A1 | 19950503 | EP 1994-116643 | 19941021 <-- |
| | EP 651450 | B1 | 19990107 | | |
| | R: DE, FR, GB, IT | | | | |
| | JP 07122274 | A | 19950512 | JP 1993-264995 | 19931022 <-- |
| | JP 07220721 | A | 19950818 | JP 1994-7760 | 19940127 <-- |
| | JP 3498345 | B2 | 20040216 | | |
| | JP 07235293 | A | 19950905 | JP 1994-26745 | 19940224 <-- |
| | JP 07249409 | A | 19950926 | JP 1994-66422 | 19940311 <-- |
| | JP 07288123 | A | 19951031 | JP 1994-220858 | 19940824 <-- |
| | JP 3498380 | B2 | 20040216 | | |
| | US 5618640 | A | 19970408 | US 1994-326365 | 19941020 <-- |
| | CA 2134052 | A1 | 19950423 | CA 1994-2134052 | 19941021 <-- |
| | EP 814522 | A2 | 19971229 | EP 1997-110038 | 19941021 <-- |
| | EP 814522 | A3 | 19990512 | | |
| | EP 814522 | B1 | 20060329 | | |
| | R: DE, FR, GB, IT | | | | |
| | EP 814523 | A2 | 19971229 | EP 1997-110039 | 19941021 <-- |
| | EP 814523 | A3 | 19990512 | | |
| | EP 814523 | B1 | 20060329 | | |
| | R: DE, FR, GB, IT | | | | |
| | US 5780181 | A | 19980714 | US 1996-756628 | 19961126 <-- |
| | US 5965293 | A | 19991012 | US 1998-33687 | 19980303 <-- |
| | JP 2004087499 | A | 20040318 | JP 2003-319511 | 20030911 <-- |
| | JP 3729193 | B2 | 20051221 | | |
| PRAI | JP 1993-264995 | A | 19931022 <-- | | |
| | JP 1994-7760 | A | 19940127 <-- | | |
| | JP 1994-26745 | A | 19940224 <-- | | |
| | JP 1994-30206 | A | 19940228 <-- | | |
| | JP 1994-66422 | A | 19940311 <-- | | |
| | US 1994-326365 | A3 | 19941020 <-- | | |
| | EP 1994-116643 | A3 | 19941021 <-- | | |
| | US 1996-756628 | A3 | 19961126 <-- | | |

AB In the nonaq. secondary battery comprising a cathode active material, anode active material, and Li salt, the anode active material contains (1) a compound capable of intercalating and deintercalating Li comprising an atom of Groups IIIB, IVB (especially Sn) or VB, (2) an amorphous compound containing ≥2 atoms selected from Groups IIIB, IVB, and VB, (3) a compound capable of intercalating and deintercalating Li containing ≥1 of atoms of Groups IIIB, IVB, and VB, and F, or (4) a compound of the metal of Groups IIIB, IVB or VB, Zn, or Mg which is capable of intercalating and deintercalating Li. The nonaq. secondary battery exhibits improved charge and discharge characteristics and suppressed Li dendrite growth.

IT 101920-93-8, Cobalt lithium nickel oxide (Co0.5LiNi0.5O2)
167994-80-1, Cobalt lithium zirconium oxide (CoLiZr0.06O2)
167994-81-2, Cobalt lithium zirconium oxide (CoLiZr0.08O2)
167994-85-6, Cobalt lithium zirconium oxide (CoLiZr0.02O2)
RL: DEV (Device component use); USES (Uses)
(cathodes; nonaq. secondary battery containing lithium intercalated mixed tin oxide anodes)

RN 101920-93-8 HCAPLUS

CN Cobalt lithium nickel oxide (Co0.5LiNi0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 167994-80-1 HCAPLUS
CN Cobalt lithium zirconium oxide (CoLiZr0.06O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.06 | 7440-67-7 |
| Co | 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

RN 167994-81-2 HCAPLUS
CN Cobalt lithium zirconium oxide (CoLiZr0.08O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.08 | 7440-67-7 |
| Co | 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

RN 167994-85-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CoLiZr0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

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L84 ANSWER 1 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:1092921 HCAPLUS Full-text
DN 147:409770
TI Method of preparing cathode active material for battery
IN Ooyama, Tomoyo; Watanabe, Haruo; Soma, Masanori
PA Sony Corporation, Japan
SO U.S. Pat. Appl. Publ., 16pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 20070224506 | A1 | 20070927 | US 2007-685571 | 20070313 <-- |
| JP 2007258095 | A | 20071004 | JP 2006-83700 | 20060324 <-- |
| PRAI JP 2006-83700 | A | 20060324 <-- | | |

AB A cathode active material capable of further improving chemical stability, a method of manufacturing the cathode active material, and a battery using the cathode active material are provided. The cathode includes a cathode active material in which a coating layer made of a compound including Li, at least one selected from Ni and Mg, and O is arranged on complex oxide particles represented by Li1+xCo1-yMyO2-z, where M is at least one kind selected from

the group consisting of Mg, Al, B, Ti, V, Cr, Mn, Fe, Ni, Cu, Zn, Mo, Sn, W, Zr, Y, Nb, Ca and Sr, and the values of x, y and z are within a range of -0.10≤x≤0.10, 0≤y<0.50 and -0.10≤z≤0.20, resp. A surface layer made of an oxide including at least one kind selected from the group consisting of Ti, Si, Mg and Zr is formed on the coating layer.

IT 131344-56-4, Cobalt lithium nickel oxide 147683-99-6, Cobalt lithium zirconium oxide 187144-48-5, Cobalt lithium magnesium oxide 214536-41-1, Cobalt lithium manganese oxide 372492-00-7, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) 642999-49-3, Aluminum cobalt lithium magnesium oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(method of preparing cathode active material for battery)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 642999-49-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

L84 ANSWER 2 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:1028932 HCAPLUS Full-text
DN 147:368502
TI Secondary battery material and synthesis method
IN Liu, Hongjian; Kepler, Keith Douglas; Wang, Yu
PA USA
SO U.S. Pat. Appl. Publ., 11pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 20070212608 | A1 | 20070913 | US 2007-717272 | 20070313 <-- |
| CN 101043076 | A | 20070926 | CN 2007-10005666 | 20070313 <-- |
| PRAI US 2006-781886P | P | 20060313 <-- | | |

AB Disclosed is a composite Li1+xMn2-x-yMyO4 cathode material stabilized by treatment with a second transition metal oxide phase that is highly suitable for use in high power and energy d. Li-ion cells and batteries. A method for treating a Li1+xMn2-x-yMyO4 cathode material utilizes a dry mixing and firing process.
IT 131344-56-4, Cobalt lithium nickel oxide 187144-48-5, Cobalt lithium magnesium oxide 214536-41-1, Cobalt lithium manganese oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(secondary battery material and synthesis method)
RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

L84 ANSWER 3 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:379658 HCAPLUS Full-text
DN 146:383519
TI Manufacture of lithium-containing composite oxide for secondary lithium battery cathode
IN Yamada, Ryoji; Tatsumi, Koji; Nakaoka, Shogo; Ito, Kenji; Hiratsuka, Kazuya
PA Seimi Chemical Co., Ltd., Japan
SO PCT Int. Appl., 27pp.
CODEN: PIXXD2
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | WO 2007037235 | A1 | 20070405 | WO 2006-JP319075 | 20060926 | <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | | |
| | RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | | |
| | FI 2007000556 | A | 20070718 | FI 2007-556 | 20070718 | <-- |
| | US 20070264573 | A1 | 20071115 | US 2007-828009 | 20070725 | <-- |
| | KR 2008048986 | A | 20080603 | KR 2007-720737 | 20070910 | <-- |
| | CN 101146746 | A | 20080319 | CN 2006-80009420 | 20070924 | <-- |
| PRAI | JP 2005-282535 | A | 20050928 | <-- | | |
| | WO 2006-JP319075 | W | 20060926 | <-- | | |

AB The title oxide, represented by: LipNxMyOzFa (N is ≥1 element selected from Co, Mn, and Ni; M is ≥1 element selected from transition metals other than the

N elements, Al, and alkaline earth metals; p = 0.9-1.2; x = 0.95-2.00; 0< y≤ 0.05; z = 1.9-4.2; and a = 0-0.05), is manufactured by mixing an aqueous solution of a M-element source with a N-element source in a powdered or pulverized form to obtain a slurry, drying/granulating the slurry, mixing with a lithium source and optionally a fluorine source powder, and firing the mixture comprising the Li source, the N-element source, and the M-element source and optionally containing the fluorine source in an O-containing atmospheric at 700-1100°.

IT 913699-28-2P, Cobalt lithium manganese nickel oxide (Co0.32Li1.02Mn0.32Ni0.32O2) 932378-91-1P, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.97Li1.01Mg0.01O2)
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(manufacture of lithium-containing composite oxides for secondary lithium battery cathodes)

RN 913699-28-2 HCAPLUS

CN Cobalt lithium manganese nickel oxide (Co0.32Li1.02Mn0.32Ni0.32O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.32 | 7440-48-4 |
| Ni | 0.32 | 7440-02-0 |
| Mn | 0.32 | 7439-96-5 |
| Li | 1.02 | 7439-93-2 |

RN 932378-91-1 HCAPLUS

CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.97Li1.01Mg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.97 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1.01 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 4 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2007:167993 HCAPLUS Full-text

DN 147:127648

TI Physical and electrochemical characterization of LiCo0.8M0.2O2 (M=Ni,Zr) cathode films for all-solid-state rechargeable thin-film lithium batteries

AU Li, Chi-lin; Liu, Wen-yuan; Fu, Zheng-wen

CS Department of Chemistry & Laser Chemistry Institute, Shanghai Key Laboratory of Molecular Catalysts and Innovative Materials, Fudan University, Shanghai, 200433, Peop. Rep. China

SO Chinese Journal of Chemical Physics (2006), 19(6), 493-498
CODEN: CJCPA6; ISSN: 1003-7713

PB Science Press

DT Journal

LA English

AB LiCo0.8M0.2O2 (M = Ni,Zr) films were fabricated by radio frequency sputtering deposition combined with conventional annealing methods. The structures of the films were characterized with XRD, Raman spectroscopy and SEM techniques. The 700°-annealed LiCo0.8M0.2O2 has an α-NaFeO2-like layered structure. All-solid-state thin-film batteries (TFBs) were fabricated with these films as the cathode and their electrochem. performances were evaluated. Doping of electrochem. active Ni and inactive Zr has different effects on the structural and electrochem. properties of the LiCoO2 cathode films. Ni doping increases the discharge capacity of the film while Zr doping improves its cycling stability.

IT 113066-91-4P, Cobalt lithium nickel oxide (Co0.8LiNi0.2O2)
943217-72-9P, Cobalt lithium zirconium oxide (Co0.8LiZr0.2O2)
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(phys. and electrochem. characterization of LiCo0.8M0.2O2 (M=Ni,Zr) cathode films for all-solid-state rechargeable thin-film lithium batteries)

RN 113066-91-4 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.8LiNi0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 | 7440-48-4 |
| Ni | 0.2 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 943217-72-9 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.8LiZr0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.2 | 7440-67-7 |
| Co | 0.8 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 5 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:117698 HCAPLUS Full-text
DN 146:209722
TI Battery
IN Obana, Yoshiaki; Tokunaga, Takashi; Akashi, Hiroyuki
PA Sony Corporation, Japan
SO U.S. Pat. Appl. Publ., 21pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20070026311 | A1 | 20070201 | US 2006-459514 | 20060724 <-- |
| | JP 2007059379 | A | 20070308 | JP 2006-141036 | 20060522 <-- |
| | KR 2007015059 | A | 20070201 | KR 2006-71264 | 20060728 <-- |
| | CN 1917276 | A | 20070221 | CN 2006-10136308 | 20060731 <-- |

PRAI JP 2005-222195 A 20050729 <--
JP 2006-141036 A 20060522 <--

AB A battery capable of improving the charge and discharge efficiency even when the battery voltage is set to over 4.2 V is provided. A cathode and an anode are oppositely arranged with an electrolyte and a separator in between. The open circuit voltage in full charge is in the range from 4.25 V to 6.00 V. The cathode has a cathode current collector and a cathode active material layer provided on the cathode current collector. The cathode active material layer contains, as a binder, a polymer with intrinsic viscosity of 2.0 dL/g to 10 dL/g which contains vinylidene fluoride as an element.

IT 193215-53-1P, Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) 372492-00-7P, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(battery with cathode containing binder)

RN 193215-53-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.2LiMn0.3Ni0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Mn | 0.3 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 372492-00-7 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98LiMg0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

IT 131344-56-4, Cobalt lithium nickel oxide 147683-99-6, Cobalt lithium zirconium oxide 197144-48-5, Cobalt lithium magnesium oxide 214536-41-1, Cobalt lithium manganese oxide 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 868842-82-4
RL: TEM (Technical or engineered material use); USES (Uses)
(battery with cathode containing binder)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 868842-82-4 HCAPLUS
CN Aluminum cobalt lithium magnesium zirconium oxide (Al0.01Co0.97LiMg0.01Zr0.01O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.01 | 7440-67-7 |
| Co | 0.97 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

L84 ANSWER 6 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2007:63351 HCAPLUS Full-text
DN 146:166436
TI Cathode for lithium secondary battery
IN Takezawa, Hideharu; Nishino, Hajime
PA Japan
SO U.S. Pat. Appl. Publ., 17pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20070015058 | A1 | 20070118 | US 2006-485999 | 20060714 <-- |
| | JP 2007048744 | A | 20070222 | JP 2006-177760 | 20060628 <-- |
| | KR 2007009447 | A | 20070118 | KR 2006-65914 | 20060713 <-- |
| | CN 1897331 | A | 20070117 | CN 2006-10105690 | 20060714 <-- |
| PRAI | JP 2005-205266 | A | 20050714 <-- | | |

AB A pos. electrode for use in a lithium secondary battery comprises a pos. electrode current collector, and a pos. electrode film which is carried on the pos. electrode current collector and includes a plurality of mixture layers. The pos. electrode film contains, as a pos. electrode active material, two or more kinds of lithium-containing compds. having exothermic initiation temps. different from each other. At least one kind of the two or more kinds of lithium-containing compds. has the exothermic initiation temperature of 300° or higher. A first mixture layer of the plural mixture layers closest to the pos. electrode current collector contains at least one kind of the lithium-containing compound having the exothermic initiation temperature of 300° or higher.

IT 198213-70-6P, Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2)
346417-97-8P, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(cathode for lithium secondary battery)

RN 198213-70-6 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.98LiMg0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

IT 182442-95-1, Cobalt lithium manganese nickel oxide
919763-80-7, Cobalt lithium manganese nickel oxide
(Co0.1-0.5Li1-1.2Mn0.1-0.5Ni0-0.8O2) 919763-81-8, Aluminum
cobalt lithium magnesium oxide ((Al,Co,Li,Mg)0.1O2)
RL: TEM (Technical or engineered material use); USES (Uses)
(cathode for lithium secondary battery)
RN 182442-95-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 919763-80-7 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1-0.5Li1-1.2Mn0.1-0.5Ni0-0.8O2)
(CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 - 0.5 | 7440-48-4 |
| Ni | 0 - 0.8 | 7440-02-0 |
| Mn | 0.1 - 0.5 | 7439-96-5 |
| Li | 1 - 1.2 | 7439-93-2 |

RN 919763-81-8 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide
(Al0-0.1Co0.8-0.99Li1-1.05Mg0-0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 - 0.99 | 7440-48-4 |
| Mg | 0 - 0.1 | 7439-95-4 |
| Li | 1 - 1.05 | 7439-93-2 |
| Al | 0 - 0.1 | 7429-90-5 |

L84 ANSWER 7 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:1286174 HCAPLUS Full-text
DN 146:47821
TI Method of preparation of cathode active material for battery
IN Watanabe, Haruo; Ogisu, Kenji; Morita, Koji; Soma, Masanori; Hosoya, Yosuke; Azuma, Hideto; Ooyama, Tomoyo
PA Sony Corp., Japan
SO U.S. Pat. Appl. Publ., 29pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI US 20060275667 | A1 | 20061207 | US 2006-419863 | 20060523 <-- |

| | | | | | |
|---|---|---|---|---|---|
| | JP 2006331940 | A | 20061207 | JP 2005-156030 | 20050527 <-- |
| | JP 2006331941 | A | 20061207 | JP 2005-156031 | 20050527 <-- |
| | JP 2006331943 | A | 20061207 | JP 2005-156033 | 20050527 <-- |
| | KR 2006122779 | A | 20061130 | KR 2006-47609 | 20060526 <-- |
| | CN 1897336 | A | 20070117 | CN 2006-10121255 | 20060529 <-- |
| PRAI | JP 2005-156030 | A | 20050527 <-- | | |
| | JP 2005-156031 | A | 20050527 <-- | | |
| | JP 2005-156033 | A | 20050527 <-- | | |

AB A cathode active material capable of increasing a capacity and improving high temperature characteristics or cycle characteristics, a method of manufacturing it, a cathode using the cathode active material, and a battery using the cathode active material are provided. In a cathode active material contained in a cathode, a coating layer is provided on at least part of a complex oxide particle containing at least Li and Co. The coating layer is an oxide which contains Li and at least one of Ni and Mn.

IT 131344-56-4P, Cobalt lithium nickel oxide 147683-99-6P, Cobalt lithium zirconium oxide 187144-48-5P, Cobalt lithium magnesium oxide 214536-41-1P, Cobalt lithium manganese oxide 887116-13-9P, Cobalt lithium manganese nickel oxide (Co0.33Li1.03Mn0.33Ni0.33O2) 916329-47-0P, Aluminum cobalt lithium magnesium oxide (Al0.03Co0.95Li1.03Mg0.02O2.02) 916329-48-1P, Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98Li1.03Mg0.01O2.02) 916329-50-5P, Cobalt lithium zirconium oxide (Co0.98Li1.03Zr0.02O2.02)
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(method of preparation of cathode active material for battery)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 887116-18-9 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33Li1.03Mn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1.03 | 7439-93-2 |

RN 916329-47-0 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.03Co0.95Li1.03Mg0.02O2.02) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2.02 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1.03 | 7439-93-2 |
| Al | 0.03 | 7429-90-5 |

RN 916329-48-1 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (Al0.01Co0.98Li1.03Mg0.01O2.02) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2.02 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Mg | 0.01 | 7439-95-4 |
| Li | 1.03 | 7439-93-2 |
| Al | 0.01 | 7429-90-5 |

RN 916329-50-5 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.98Li1.03Zr0.02O2.02) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2.02 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 0.98 | 7440-48-4 |
| Li | 1.03 | 7439-93-2 |

L84 ANSWER 8 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:655222 HCAPLUS Full-text
DN 145:106870
TI Lithium-ion secondary battery
IN Lampe-Onnerud, Christina M.
PA Boston-Power, Inc., USA
SO PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 2

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2006071972 | A2 | 20060706 | WO 2005-US47383 | 20051223 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| | RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | EP 1831952 | A2 | 20070912 | EP 2005-855875 | 20051223 <-- |
| | R: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, AL, BA, HR, MK, YU | | | | |
| | JP 2008525973 | T | 20080717 | JP 2007-548600 | 20051223 <-- |
| | US 20070026315 | A1 | 20070201 | US 2006-485068 | 20060712 <-- |
| | US 20080008933 | A1 | 20080110 | US 2007-821102 | 20070621 <-- |
| | WO 2008002486 | A2 | 20080103 | WO 2007-US14591 | 20070622 <-- |
| | WO 2008002486 | A3 | 20080320 | | |
| | WO 2008002486 | A9 | 20080529 | | |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | | |
| | RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AP, EA, EP, OA | | | | |
| | CN 101288197 | A | 20081015 | CN 2005-80045007 | 20070627 <-- |
| | KR 2007100957 | A | 20071015 | KR 2007-717360 | 20070727 <-- |
| PRAI | US 2004-639275P | P | 20041228 | <-- | |
| | US 2005-680271P | P | 20050512 | <-- | |
| | US 2005-699285P | P | 20050714 | <-- | |
| | WO 2005-US47383 | W | 20051223 | <-- | |
| | US 2006-474056 | A2 | 20060623 | <-- | |
| | US 2006-485068 | A2 | 20060712 | <-- | |

AB In one embodiment, an active cathode material comprises a mixture that includes: at least one of a lithium cobaltate and lithium nickelate; and at

least one of a manganate spinel represented by an empirical formula of Li(1+x)Mn1-y1(A'y1)2-xlOz1 and an olivine compound represented by an empirical formula of Li(1-x2)A''x2MPO4. In another embodiment, an active cathode material comprises a mixt . that includes: a lithium nickelate selected from the group consisting of LiCoO2-coated LiNi0.8Co0.15Al0.05O2, and Li(Ni1/3Co1/3Mn1/3)O2; and a manganate spinel represented by an empirical formula of Li(1+x7)Mn2-y7Oz7. A lithium-ion battery and a battery pack each independently employ a cathode that includes an active cathode material as described above. A method of forming a lithium-ion battery includes the steps of forming an active cathode material as described above; forming a cathode electrode with the active cathode material; and forming an anode electrode in elec. contact with the cathode via an electrolyte. A system comprises a portable electronic device and a battery pack or lithium-ion battery as described above.

IT 131344-56-4, Cobalt lithium nickel oxide 214536-41-1, Cobalt lithium manganese oxide 253868-42-7, Cobalt lithium magnesium titanium oxide 346417-97-8, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) 642999-49-3, Aluminum cobalt lithium magnesium oxide
RL: DEV (Device component use); USES (Uses)
(lithium-ion secondary battery)

RN 131344-56-4 HCAPLUS
CN Cobalt lithium nickel oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ni | x | 7440-02-0 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RN 253868-42-7 HCAPLUS
CN Cobalt lithium magnesium titanium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Ti | x | 7440-32-6 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component |
|---|---|---|

| | | Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 642999-49-3 HCAPLUS
CN Aluminum cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |
| Al | x | 7429-90-5 |

L84 ANSWER 9 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:579802 HCAPLUS Full-text
DN 145:48610
TI Electrode structure for lithium secondary battery
IN Kawakami, Soichiro; Morita, Akira; Ogura, Takao
PA Canon Kabushiki Kaisha, Japan
SO U.S. Pat. Appl. Publ., 30 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20060127773 | A1 | 20060615 | US 2005-296460 | 20051208 <-- |
| | JP 2007165061 | A | 20070628 | JP 2005-358197 | 20051212 <-- |
| PRAI | JP 2004-358458 | A | 20041210 | <-- | |
| | JP 2005-29843 | T0 | 20050204 | <-- | |
| | JP 2005-330663 | T0 | 20051115 | <-- | |

AB In an electrode structure for a lithium secondary battery including: a main active material layer formed from a metal powder selected from silicon, tin and an alloy thereof that can store and discharge and capable of lithium by electrochem. reaction, and a binder of an organic polymer; and a current collector, wherein the main active material layer is formed at least by a powder of a support material for supporting the electron conduction of the main active material layer in addition to the metal powder and the powder of the support material are particles having a spherical, pseudo-spherical or pillar shape with an average particle size of 0.3 to 1.35 times the thickness of the main active material layer. The support material is one or more materials selected from a group consisting of graphite, oxides of transition metals and metals that do not electrochem. form alloy with lithium. Organic polymer compounded with a conductive polymer is used for the binder. There are provided an electrode structure for a lithium secondary battery having a high capacity and a long lifetime, and a lithium secondary battery using the electrode structure and having a high capacity, a high energy d. and a long lifetime.

IT 856700-33-9, Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.34O2) 890303-56-7, Cobalt lithium zirconium oxide (Co0.96LiZr0.04O2)
RL: DEV (Device component use); USES (Uses)

(electrode structure for lithium secondary battery)
RN 856700-33-9 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.34O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.34 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 890303-56-7 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.96LiZr0.04O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.04 | 7440-67-7 |
| Co | 0.96 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

L84 ANSWER 10 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2006:49357 HCAPLUS Full-text
DN 144:131827
TI Secondary lithium battery, zirconium-containing stable cathode active mass of coated lithium-nickel-transition metal oxides for it, and manufacture of the active mass
IN Miyahara, Michihisa; Shiraishi, Yohei; Tanno, Seiji; Otomo, Mitsuru; Koizumi, Tomoyoshi
PA Kureha Chemical Industry Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2006019229 | A | 20060119 | JP 2004-198548 | 20040705 <-- |
| PRAI JP 2004-198548 | | 20040705 <-- | | |

AB The cathode active mass comprises a coating layer of LiCoaZr1-aO2(0 < a ≤ 1) and a core of LiNixM1-xO2 (M = Co, Mn, Zr, Ti, B, Al, Ga, and In; 0.5 < x ≤ 1.0; x <1.0 and M = Zr and optionally other metals shown above when a = 1), wherein the molar ratio of Co content in the coating layer to the total metal content in the core (X) satisfies the relationship of 0.0125 < X < 0.5. The manufacturing method involves (A) dispersing powders of the core material in an aqueous solution containing cobalt nitrate and optionally zirconium nitrate for forming a precursor of the coating layer on the core surface and (B) firing the coated powders.
IT 847683-99-6P, Cobalt lithium zirconium oxide 600177-64-8P
, Cobalt lithium zirconium oxide ((Co,Zr)LiO2)
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(coating layer; stable secondary Li battery cathode active mass of coated Li-Ni-transition metal oxides containing Zr)

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 600177-64-8 HCAPLUS
CN Cobalt lithium zirconium oxide ((Co,Zr)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0 - 1 | 7440-67-7 |
| Co | 0 - 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |

IT 872580-93-3P, Cobalt lithium manganese nickel oxide (Co0.08Li1.05Mn0.05Ni0.87O2)
RL: DEV (Device component use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(core; stable secondary Li battery cathode active mass of coated Li-Ni-transition metal oxides containing Zr)
RN 872580-93-3 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.08Li1.05Mn0.05Ni0.87O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.08 | 7440-48-4 |
| Ni | 0.87 | 7440-02-0 |
| Mn | 0.05 | 7439-96-5 |
| Li | 1.05 | 7439-93-2 |

L84 ANSWER 11 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2004:836203 HCAPLUS Full-text
DN 143:10384
TI Influence of the synthesis and doping on the morphologic, structural and electrochemical properties of LiCo1-xMxO2 (M=Ni, Al, Mg) oxides
AU Castro-Garcia, S.; Senaris-Rodriguez, M. A.; Castro-Couceiro, A.; Julien, C.
CS Dpto. Quimica Fundamental, Facultade de Ciencias, A Zapateira, Universidade da Coruna, Coruna, 15071, Spain
SO Boletin de la Sociedad Espanola de Ceramica y Vidrio (2004), 43(4), 780-786
CODEN: BSCVB9; ISSN: 0366-3175
PB Sociedad Espanola de Ceramica y Vidrio
DT Journal
LA Spanish
AB In this work we have prepared, by a sol-gel method, LiCo1-xMxO2 compds. (M=Ni, Al and Mg), in order to study the doping effect in their electrochem. behavior as cathodes in lithium-batteries. We have studied the influence of the

synthesis conditions (using various chelating agents for the formation of the gel) on their morphol., structural and electrochem. properties. We have obtained monophasic materials: LiCo1−xNixO2 (0≤+≤0.8), LiCo1−xMgxO2 (0≤+≤0.05), LiCo1−xAlxO2 (0≤+≤0.3) and LiCo0.5Ni0.5−xAlxO2 (0≤+≤0.3). In general, the samples obtained with succinic acid have better ordered lithium layers than malic samples. The capacity of the Li//LiCo1−xMxO2 batteries decrease upon doping. However, more stable charge-discharge cycling performances have been obtained as compared to those displayed by the native oxides. In LiCo1−xMgxO2, small amts. of MgO appear as secondary phases for 0.05<+<0.1. However, these samples show a good electrochem. behavior and it is interesting that the sample with x=0.1 exhibits a lower capacity fading than the undoped sample after the first 30 cycles. The most important effects of the Al-doping in LiCo1−xAlxO2 and LiCo0.5Ni0.5−xAlxO2 are that it increases the bidimensionality of the structure and decreases the particle size; both effects favor the Li-ion diffusion during the charge-discharge process.

IT 101920-93-8, Cobalt lithium nickel oxide (Co0.5LiNi0.5O2)
113066-78-7, Cobalt lithium nickel oxide (Co0.4LiNi0.6O2)
113066-89-0, Cobalt lithium nickel oxide (Co0.2LiNi0.8O2)
113066-90-3, Cobalt lithium nickel oxide (Co0.6LiNi0.4O2)
113066-91-4, Cobalt lithium nickel oxide (Co0.8LiNi0.2O2)
144419-56-7, Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2)
144470-86-0, Cobalt lithium magnesium oxide (Co0.8LiMg0.2O2)
198213-72-8, Cobalt lithium magnesium oxide (Co0.92LiMg0.08O2)
198213-74-0, Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2)
679438-19-8, Cobalt lithium magnesium oxide (Co0.85LiMg0.15O2)
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(synthesis and doping effects on morphol., structure and electrochem. properties of LiCo1−xMxO2 (M=Ni,Al,Mg))

RN 101920-93-8 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.5LiNi0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 113066-78-7 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.4LiNi0.6O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.4 | 7440-48-4 |
| Ni | 0.6 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 113066-89-0 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |

| | | |
|---|---|---|
| Li | 1 | 7439-93-2 |

RN 113066-90-3 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.6LiNi0.4O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.6 | 7440-48-4 |
| Ni | 0.4 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 113066-91-4 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.8LiNi0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 | 7440-48-4 |
| Ni | 0.2 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 144419-56-7 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.95LiMg0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.95 | 7440-48-4 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 144470-86-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.8LiMg0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 | 7440-48-4 |
| Mg | 0.2 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 198213-72-8 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.92LiMg0.08O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.92 | 7440-48-4 |
| Mg | 0.08 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 198213-74-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.9LiMg0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.9 | 7440-48-4 |
| Mg | 0.1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 679438-19-8 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.85LiMg0.15O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.85 | 7440-48-4 |
| Mg | 0.15 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 12 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:875565 HCAPLUS Full-text
DN 139:352721
TI Process for preparation of complex lithium metal oxides with enhanced cycle life and safety
IN Park, Hong-kyu; Kwon, Yong Hoon; Park, Seong Yong; Kim, Jin On; Lee, Ki Young
PA Lg Chem. Ltd., S. Korea
SO PCT Int. Appl., 22 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | WO 2003092099 | A1 | 20031106 | WO 2003-KR815 | 20030422 <-- |
| | W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| | RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| | KR 2003083476 | A | 20031030 | KR 2002-22167 | 20020423 <-- |
| | AU 2003222488 | A1 | 20031110 | AU 2003-222488 | 20030422 <-- |
| | CN 1565063 | A | 20050112 | CN 2003-801140 | 20030422 <-- |
| | EP 1497876 | A1 | 20050119 | EP 2003-717762 | 20030422 <-- |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| | JP 2005524204 | T | 20050811 | JP 2004-500352 | 20030422 <-- |
| | US 20040200998 | A1 | 20041014 | US 2004-487861 | 20040226 <-- |
| | US 7235193 | B2 | 20070626 | | |
| PRAI | KR 2002-22167 | A | 20020423 | <-- | |
| | WO 2003-KR815 | W | 20030422 | <-- | |

AB This invention relates to complex lithium metal oxides, which are cathode active materials of a lithium or lithium ion secondary battery with enhanced cycle life and safety, and a process for preparation thereof. The core particles are complex lithium metal oxides capable of absorbing, storing and emitting lithium ions, and a coating layer comprised of amorphous complex lithium cobalt oxides that are formed on the surface of the core particle, which is structurally stable and inactive with electrolytes. Because the amorphous complex lithium cobalt oxides are inactive with electrolytes, the oxides stabilize the surface structure of the complex lithium metal oxide and improve on high temperature storage properties, as well as safety and cycle life.

IT 147683-99-6, Cobalt lithium zirconium oxide 187144-48-5, Cobalt lithium magnesium oxide 214536-41-1, Cobalt lithium manganese oxide
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; process for preparation of complex lithium metal oxides with enhanced cycle life and safety)

RN 147683-99-6 HCAPLUS
CN Cobalt lithium zirconium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Zr | x | 7440-67-7 |
| Co | x | 7440-48-4 |
| Li | x | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RN 214536-41-1 HCAPLUS
CN Cobalt lithium manganese oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mn | x | 7439-96-5 |
| Li | x | 7439-93-2 |

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 13 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:757154 HCAPLUS Full-text
DN 139:263344
TI Layered electrodes for lithium cells and batteries
IN Johnson, Christopher S.; Thackeray, Michael M.; Vaughey, John T.; Kahaian, Arthur J.; Kim, Jeom-soo
PA The University of Chicago, USA

SO U.S. Pat. Appl. Publ., 28 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | US 20030180616 | A1 | 20030925 | US 2003-365286 | 20030212 <-- |
| | US 7358009 | B2 | 20080415 | | |
| PRAI | US 2002-357393P | P | 20020215 <-- | | |

AB Lithium metal oxide compds. of nominal formula Li2MO2, in which M represents two or more pos. charged metal ions, selected predominantly and preferably from the first row of transition metals are disclosed herein. The Li2MO2 compds. have a layered-type structure, which can be used as pos. electrodes for lithium electrochem. cells, or as a precursor for the in-situ electrochem. fabrication of LiMO2 electrodes. The Li2MO2 compds. of the invention may have addnl. functions in lithium cells, for example, as end-of-discharge indicators, or as neg. electrodes for lithium cells.

IT 309242-27-1P, Cobalt lithium magnesium nickel titanium oxide Co0.15LiMg0.05Ni0.75Ti0.05O2 346417-97-8P, Cobalt lithium manganese nickel oxide Co0.33LiMn0.33Ni0.33O2
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(layered electrodes for lithium cells and batteries)

RN 309242-27-1 HCAPLUS
CN Cobalt lithium magnesium nickel titanium oxide (Co0.15LiMg0.05Ni0.75Ti0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ti | 0.05 | 7440-32-6 |
| Ni | 0.75 | 7440-02-0 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 346417-97-8 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.33LiMn0.33Ni0.33O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.33 | 7440-48-4 |
| Ni | 0.33 | 7440-02-0 |
| Mn | 0.33 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 14 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:677062 HCAPLUS Full-text
DN 139:397855
TI Local structure and electrochemistry of doped lithium cobalt oxides as positive electrode for Li-ion batteries
AU Julien, C.

CS Laboratoire des Milieux Desordonnes et Heterogenes, UMR 7603 Universite Pierre et Marie Curie, Paris, 75252/05, Fr.
SO Proceedings - Electrochemical Society (2003), 2001-21(Batteries and Supercapacitors), 41-51
CODEN: PESODO; ISSN: 0161-6374
PB Electrochemical Society
DT Journal
LA English
AB We present the structural and electrochem. properties of doped LiCo1-yMyO2 (M=Ni, Al, B, Mg) oxides prepared by various methods, i.e. solid-state reaction, wet chemical techniques. The local structure studied by resonance spectroscopy (Raman and FTIR) is reported. Synthesis procedures of LiCoO2 cathode materials greatly affect the electrochem. and cycle life characteristics of their layered structure. Aluminum substituted oxides show interesting features as the presence of Al allows to reduce the grain size and enhances the lithium diffusion coeffs. in electrodes.
IT 135573-53-4, Cobalt lithium nickel oxide (Co0-1LiNi0-1O2)
187144-48-5, Cobalt lithium magnesium oxide
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(local structure and electrochem. of doped lithium cobalt oxides as pos. electrode for Li-ion batteries)
RN 135573-53-4 HCAPLUS
CN Cobalt lithium nickel oxide ((Co,Ni)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Ni | 0 - 1 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 187144-48-5 HCAPLUS
CN Cobalt lithium magnesium oxide (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | x | 17778-80-2 |
| Co | x | 7440-48-4 |
| Mg | x | 7439-95-4 |
| Li | x | 7439-93-2 |

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 15 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2003:355675 HCAPLUS Full-text
DN 138:371699
TI Cathode active material for a rechargeable lithium battery having structural stability and improved cycle life characteristics
IN Cho, Jae-Phil; Park, Byung-Woo; Kim, Yong-Jeong; Kim, Tae-Jun
PA Samsung SDE Co., Ltd., S. Korea
SO U.S. Pat. Appl. Publ., 13 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

| | | | | | |
|---|---|---|---|---|---|
| PI | US 20030087155 | A1 | 20030508 | US 2002-270811 | 20021015 <-- |
| | US 6916580 | B2 | 20050712 | | |
| | KR 2003033716 | A | 20030501 | KR 2001-65805 | 20011024 <-- |
| | JP 2003178759 | A | 20030627 | JP 2002-308368 | 20021023 <-- |
| PRAI | KR 2001-65805 | A | 20011024 <-- | | |

AB A pos. active material for a rechargeable lithium battery is provided. The pos. active material comprises a lithiated intercalation compound and a coating layer formed on the lithiated intercalation compound The coating layer comprises a solid-solution compound and an oxide compound having at least two coating elements, the oxide compound represented by the formula: MpM'qOr wherein M and M' are not the same and are each independently at least one element selected from the group consisting of Zr, Al, Na, K, Mg, Ca, Sr, Ni, Co, Ti, Sn, Mn, Cr, Fe, and V; 0<p<1; 0<q<1; and 1<r≤2, where r is determined based upon p and q. The solid-solution compound is prepared by reacting the lithiated intercalation compound with the oxide compound The coating layer has a fracture toughness of at least 3.5 MPam1/2. A method of making the pos. active material is also provided.

IT 116327-69-6P, Cobalt lithium nickel oxide (Co0.1LiNi0.9O2)
RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(aluminum cobalt lithium nickel zirconium oxide solid solution-coated, substrate particles, strontium doped; cathode active material for rechargeable lithium battery having structural stability and improved cycle life characteristics)

RN 116327-69-6 HCAPLUS

CN Cobalt lithium nickel oxide (Co0.1LiNi0.9O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.9 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

IT 521980-94-9DP, Aluminum cobalt lithium zirconium oxide (Al0-0.2Co0.4-1LiZr0-0.2O2), solid solns. with aluminum zirconium oxide
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(coatings, on metal oxides; cathode active material for rechargeable lithium battery having structural stability and improved cycle life characteristics)

RN 521980-94-9 HCAPLUS

CN Aluminum cobalt lithium zirconium oxide (Al0-0.2Co0.4-1LiZr0-0.2O2) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0 - 0.2 | 7440-67-7 |
| Co | 0.4 - 1 | 7440-48-4 |
| Li | 1 | 7439-93-2 |
| Al | 0 - 0.2 | 7429-90-5 |

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 16 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2003:140923 HCAPLUS Full-text
DN 138:388026
TI Local structure and electrochemistry of lithium cobalt oxides and their doped compounds
AU Julien, C.
CS UMR 7603 , Laboratoire des Milieux Desordonnes et Heterogenes, Universite Pierre et Marie Curie, Paris, 75252, Fr.
SO Solid State Ionics (2003), 157(1-4), 57-71
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB We present the structural and electrochem. properties of LiCoO2 and doped LiCo1-yMyO2 (M=Ni, Al, B, Mg) oxides prepared by various methods, i.e. solid-state reaction, wet chemical and film deposition techniques. The local structure studied by resonance spectroscopy (Raman and FTIR) is reported. Synthesis procedures of LiCoO2 cathode materials greatly affect the electrochem. and cycle life characteristics of their layered structure.
IT 135573-53-4, Cobalt lithium nickel oxide ((Co,Ni)LiO2)
527744-92-9, Cobalt lithium magnesium oxide ((Co,Mg)LiO2)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(local structure and electrochem. of lithium cobalt oxides and their doped compds.)
RN 135573-53-4 HCAPLUS
CN Cobalt lithium nickel oxide ((Co,Ni)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Ni | 0 - 1 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 527744-92-9 HCAPLUS
CN Cobalt lithium magnesium oxide ((Co,Mg)LiO2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Mg | 0 - 1 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 34 THERE ARE 34 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 17 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:447285 HCAPLUS Full-text
DN 137:22377
TI Cathode active mass for secondary lithium battery and its manufacture
IN Kohiro, Kenji; Nagase, Ryuichi
PA Nikko Materials Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE | |
|---|---|---|---|---|---|---|
| PI | JP 2002170562 | A | 20020614 | JP 2000-364075 | 20001130 | <-- |
| | TW 488107 | B | 20020521 | TW 2001-90104839 | 20010302 | <-- |
| | US 20020102204 | A1 | 20020801 | US 2001-828734 | 20010409 | <-- |
| | US 6497854 | B2 | 20021224 | | | |
| | CN 1356736 | A | 20020703 | CN 2001-119783 | 20010530 | <-- |
| | CN 1188923 | C | 20050209 | | | |
| PRAI | JP 2000-364075 | A | 20001130 | <-- | | |

AB The cathode active mass is a layer structured compound LixNi1-a-b-c-dCoaM1bM2cM3dO2(M1, M2, M3 = Ti, Mg, B, and/or Al), where, 1.0 ≤x ≤1.2, 0.1 ≤a ≤0.3, 0.005 ≤b ≤0.1. 0.005 ≤c ≤0.1, 0.005 ≤d ≤0.1 and 0.115 ≤a+b+c+d ≤0.4. The mass is prepared by mixing copptd. Ni1-a-b-c-dCoaM1bM2cM3d(OH2) with Li compound, baking the mixture in an O atmospheric at 480-850° (especially 480-630°) for 15-40 h, crushing the fired compound, and again baking the crushed compound at 700-850° for 3-10 h.

IT 245429-22-5, Cobalt lithium nickel oxide (Co0.2Li1.1Ni0.8O2)
RL: DEV (Device component use); USES (Uses)
(compns. and manufacture of layered lithium cobalt nickel oxides from copptd. materials for secondary lithium battery cathodes)

RN 245429-22-5 HCAPLUS

CN Cobalt lithium nickel oxide (Co0.2Li1.1Ni0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Li | 1.1 | 7439-93-2 |

IT 434343-58-5
RL: DEV (Device component use); USES (Uses)
(substitute; compns. and manufacture of layered lithium cobalt nickel oxides from copptd. materials for secondary lithium battery cathodes)

RN 434343-58-5 HCAPLUS

CN Aluminum cobalt lithium magnesium nickel titanium oxide (Al0.02Co0.14Li1.1Mg0.02Ni0.8Ti0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.14 | 7440-48-4 |
| Ti | 0.02 | 7440-32-6 |
| Ni | 0.8 | 7440-02-0 |
| Mg | 0.02 | 7439-95-4 |
| Li | 1.1 | 7439-93-2 |
| Al | 0.02 | 7429-90-5 |

L84 ANSWER 18 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN

AN 2002:272908 HCAPLUS Full-text

DN 136:297394

TI Solid electrolyte cell

IN Goto, Shuji; Hosoya, Mamoru; Endo, Takahiro

PA Sony Corporation, Japan

SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | EP 1195826 | A2 | 20020410 | EP 2001-123774 | 20011004 <-- |
| | EP 1195826 | A3 | 20031126 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| | JP 2002117844 | A | 20020419 | JP 2000-306876 | 20001005 <-- |
| | JP 3982165 | B2 | 20070926 | | |
| | US 20020094481 | A1 | 20020718 | US 2001-966864 | 20010928 <-- |
| | US 6720113 | B2 | 20040413 | | |
| | TW 523952 | B | 20030311 | TW 2001-90124127 | 20010928 <-- |
| | CN 1349273 | A | 20020515 | CN 2001-139323 | 20010930 <-- |
| | CN 1181590 | C | 20041222 | | |
| | CA 2358294 | A1 | 20020405 | CA 2001-2358294 | 20011003 <-- |
| | MX 2001PA09973 | A | 20030820 | MX 2001-PA9973 | 20011003 <-- |
| | KR 826814 | B1 | 20080502 | KR 2001-61125 | 20011004 <-- |
| PRAI | JP 2000-306876 | A | 20001005 <-- | | |

AB A solid electrolyte cell in which cell characteristics are not deteriorated even on overdischarge to the cell voltage of 0 V, such that the shape of the cell encapsulated in the laminate film is maintained. The cell includes a cathode containing a compound represented by the general formula LixFe1-yMyPO4 where $0.05 \leq x \leq 1.2$, $0 \leq y \leq 0.8$, and M is at least one selected from the group consisting of Mn, Cr, Co, Cu, Ni, V, Mo, Ti, Zn, Al, Ga, Mg, B and Nb, an anode and a solid electrolyte. An electrode unit 1 comprised of the cathode and the anode layered together with interposition of the solid electrolyte is encapsulated with a laminate film 2.

IT 116327-69-6, Cobalt lithium nickel oxide Co0.1LiNi0.9O2
408331-94-2, Cobalt lithium nickel oxide ((Co,Ni)Li0-2O2)
408331-95-3, Cobalt lithium manganese oxide ((Co,Mn)Li0-2O2)
408332-03-6, Cobalt lithium magnesium oxide ((Co,Mg)Li0-2O2)
408332-42-3, Cobalt lithium manganese oxide ((Co,Mn)2Li0-2O4)
RL: DEV (Device component use); USES (Uses)
(solid electrolyte cell)

RN 116327-69-6 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.1LiNi0.9O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.9 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 408331-94-2 HCAPLUS
CN Cobalt lithium nickel oxide ((Co,Ni)Li0-2O2) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Ni | 0 - 1 | 7440-02-0 |
| Li | 0 - 2 | 7439-93-2 |

RN 408331-95-3 HCAPLUS
CN Cobalt lithium manganese oxide ((Co,Mn)Li0-2O2) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Mn | 0 - 1 | 7439-96-5 |
| Li | 0 - 2 | 7439-93-2 |

RN 408332-03-6 HCAPLUS
CN Cobalt lithium magnesium oxide ((Co,Mg)Li0-2O2) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0 - 1 | 7440-48-4 |
| Mg | 0 - 1 | 7439-95-4 |
| Li | 0 - 2 | 7439-93-2 |

RN 408332-42-3 HCAPLUS
CN Cobalt lithium manganese oxide ((Co,Mn)2Li0-2O4) (9CI) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 4 | 17778-80-2 |
| Co | 0 - 2 | 7440-48-4 |
| Mn | 0 - 2 | 7439-96-5 |
| Li | 0 - 2 | 7439-93-2 |

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 19 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:216203 HCAPLUS Full-text
DN 136:250258
TI Method for preparation of lithiated oxide materials with a well layered crystal structure for battery cathodes
IN Paulsen, Jens Martin; Kieu, Loan Yen; Ammundsen, Brett Graeme
PA Ilion Technology Corporation, USA; Pacific Lithium New Zealand Limited
SO Eur. Pat. Appl., 25 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | EP 1189296 | A2 | 20020320 | EP 2001-302209 | 20010309 <-- |
| | EP 1189296 | A3 | 20050511 | | |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO | | | | |
| | US 20030022063 | A1 | 20030130 | US 2001-799935 | 20010306 <-- |
| | US 6660432 | B2 | 20031209 | | |
| | JP 2002110167 | A | 20020412 | JP 2001-181459 | 20010615 <-- |
| | JP 3571671 | B2 | 20040929 | | |
| PRAI | US 2000-232551P | P | 20000914 | <-- | |

AB A single phase cathodic material for use in an electrochem. cell is represented by the formula: Li[LixCoyAlz-x-y]O2 wherein A = [MnzNi1-z]; wherein x is a numerical value ranging from approx. 0.00 to approx. 0.16; wherein y is a numerical value ranging from approx. 0.1 to approx. 0.30; wherein z is a numerical value ranging from approx. 0.40 to approx. 0.65; and wherein Lix is included in transition metal layers of the structure and/or wherein the material comprises a layered R-3m crystal structure having a c/a ratio greater than approx. 1.012.

IT 403985-65-9P, Cobalt lithium manganese nickel oxide (Co0.05Li1.1Mn0.42Ni0.43O2) 403985-66-0P, Cobalt lithium manganese nickel oxide (Co0.04Li1.13Mn0.41Ni0.42O2) 403985-67-1P, Cobalt lithium manganese nickel oxide (Co0.09Li1.08Mn0.41Ni0.41O2) 403985-68-2P, Cobalt lithium manganese nickel oxide (Co0.09Li1.12Mn0.39Ni0.39O2) 403985-69-3P, Cobalt lithium manganese nickel oxide (Co0.16Li1.06Mn0.39Ni0.39O2) 403985-70-6P, Cobalt lithium manganese nickel oxide (Co0.15Li1.11Mn0.37Ni0.37O2) 403985-72-8P 403985-73-9P, Cobalt lithium manganese nickel oxide (Co0.15Li1.09Mn0.38Ni0.38O2)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(method for preparation of lithiated oxide materials with well layered crystal structure for battery cathodes)

RN 403985-65-9 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.05Li1.1Mn0.42Ni0.43O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.05 | 7440-48-4 |
| Ni | 0.43 | 7440-02-0 |
| Mn | 0.42 | 7439-96-5 |
| Li | 1.1 | 7439-93-2 |

RN 403985-66-0 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.04Li1.13Mn0.41Ni0.42O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.04 | 7440-48-4 |
| Ni | 0.42 | 7440-02-0 |
| Mn | 0.41 | 7439-96-5 |
| Li | 1.13 | 7439-93-2 |

RN 403985-67-1 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.09Li1.08Mn0.41Ni0.41O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.09 | 7440-48-4 |
| Ni | 0.41 | 7440-02-0 |
| Mn | 0.41 | 7439-96-5 |
| Li | 1.08 | 7439-93-2 |

RN 403985-68-2 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.09Li1.12Mn0.39Ni0.39O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.09 | 7440-48-4 |
| Ni | 0.39 | 7440-02-0 |
| Mn | 0.39 | 7439-96-5 |
| Li | 1.12 | 7439-93-2 |

RN 403985-69-3 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.16Li1.06Mn0.39Ni0.39O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.16 | 7440-48-4 |
| Ni | 0.39 | 7440-02-0 |
| Mn | 0.39 | 7439-96-5 |
| Li | 1.06 | 7439-93-2 |

RN 403985-70-6 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.15Li1.11Mn0.37Ni0.37O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ni | 0.37 | 7440-02-0 |
| Mn | 0.37 | 7439-96-5 |
| Li | 1.11 | 7439-93-2 |

RN 403985-72-8 HCAPLUS
CN Cobalt lithium magnesium nickel titanium oxide (Co0.2LiMg0.04Ni0.7Ti0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ti | 0.05 | 7440-32-6 |
| Ni | 0.7 | 7440-02-0 |
| Mg | 0.04 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 403985-73-9 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.15Li1.09Mn0.38Ni0.38O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|

| | | |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.15 | 7440-48-4 |
| Ni | 0.38 | 7440-02-0 |
| Mn | 0.38 | 7439-96-5 |
| Li | 1.09 | 7439-93-2 |

RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 20 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2002:98448 HCAPLUS Full-text
DN 136:170192
TI Lithium-containing cobalt composite oxide for improving overcharge resistance and battery capacity in secondary lithium battery and its manufacturing method
IN Kuribayashi, Isao
PA K.E.E. Y. K., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2002037629 | A | 20020206 | JP 2000-256444 | 20000725 <-- |
| PRAI JP 2000-256444 | | 20000725 <-- | | |

AB The Li-containing Co composite oxide has a general formula LiaMbNicCo1-b-cO2 (M=Ti, Ga, Zr, Cr, Al Cu and/or Zn; a=1.00-1.03; b=0.0003-0.015; c=0-0.3). The Li-containing Co composite oxide is manufactured by mixing ≥1 of Li compds. selected from Li2CO3, LiOH, and Li acetate with ≥1 of Co compds. selected from Co3O4, Co(OH)2, and CoCO3 at a Li/Co mol. ratio of 1.05-1.25, preheating at 900-1050°, pulverizing, mixing with ≥1 of acetates, nitrates, sulfates, carbonates, hydroxides, and oxides of Ti, Ga, Zr, Cr, Al, Cu and Zn, heating at 800-1050°, extracting excess Li with distilled H2O or deionized water to make the Li/Co mol. ratio 1.00-1.03 and drying.
IT 396728-52-2P, Cobalt lithium nickel oxide (Co0.79Li1.02Ni0.21O2)
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(Al-doped; lithium-containing cobalt composite oxide for improving overcharge resistance and battery capacity in secondary lithium battery and its manufacturing method)
RN 396728-52-2 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.79Li1.02Ni0.21O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.79 | 7440-48-4 |
| Ni | 0.21 | 7440-02-0 |
| Li | 1.02 | 7439-93-2 |

IT 396728-50-0P, Cobalt lithium zirconium oxide (Co0.98Li1.01Zr0.02O2)
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(Cu- and Zn-doped; lithium-containing cobalt composite oxide for improving overcharge resistance and battery capacity in secondary

lithium battery and its manufacturing method)
RN 396728-50-0 HCAPLUS
CN Cobalt lithium zirconium oxide (Co0.98Li1.01Zr0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Zr | 0.02 | 7440-67-7 |
| Co | 0.98 | 7440-48-4 |
| Li | 1.01 | 7439-93-2 |

L84 ANSWER 21 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:901026 HCAPLUS Full-text
DN 136:40171
TI Secondary battery with multiple oxide mixture cathode
IN Tsujimoto, Takashi; Yamamoto, Yoshikatsu; Hisayama, Junji; Kumakawa, Masashi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 13 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2001345102 | A | 20011214 | JP 2001-102690 | 20010330 <-- |
| PRAI JP 2000-93379 | A | 20000330 <-- | | |

AB The battery has a cathode composed of 1st multiple oxide of Li, Mn, and B and/or a metal other than Mn; and a 2nd multiple oxide of Li, co, and another metal or B.
IT 113066-91-4, Cobalt lithium nickel oxide (Co0.8LiNi0.2O2)
144470-86-0, Cobalt lithium magnesium oxide (Co0.8LiMg0.2O2)
RL: DEV (Device component use); USES (Uses)
(compns. of multiple oxide mixts. for secondary lithium battery cathodes)
RN 113066-91-4 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.8LiNi0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 | 7440-48-4 |
| Ni | 0.2 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 144470-86-0 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.8LiMg0.2O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.8 | 7440-48-4 |
| Mg | 0.2 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

L84 ANSWER 22 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:451322 HCAPLUS Full-text
DN 135:63759
TI Secondary lithium batteries having improved cathodes
IN Yamaki, Takahiro; Honbo, Hidetoshi; Kita, Fusaji; Idzu, Tetsuo
PA Hitachi Ltd., Japan; Hitachi Maxell, Ltd.
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| PI JP 2001167763 | A | 20010622 | JP 1999-349782 | 19991209 <-- |
| JP 2006173137 | A | 20060629 | JP 2006-18522 | 20060127 <-- |
| PRAI JP 1999-349782 | A3 | 19991209 <-- | | |

AB The batteries have cathodes containing (1) Li Co oxide active masses containing Mg, Al, Mn, Ti, and/or Sr and (2) C-based conductors with amorphous C surface layers. The batteries have high energy d. and cycle performance.
IT 142447-13-0, Cobalt lithium manganese oxide (Co0.97LiMn0.03O2)
345664-06-4, Cobalt lithium magnesium oxide (CoLiMg0.03O2)
345664-09-7, Cobalt lithium magnesium titanium oxide (Co0.98LiMg0.01Ti0.02O2)
RL: DEV (Device component use); USES (Uses)
(Li batteries having cathodes containing Li Co metal oxides and conductors covered with amorphous C for high energy d. and cycle performance)
RN 142447-13-0 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.97LiMn0.03O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.97 | 7440-48-4 |
| Mn | 0.03 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 345664-06-4 HCAPLUS
CN Cobalt lithium magnesium oxide (CoLiMg0.03O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 1 | 7440-48-4 |
| Mg | 0.03 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 345664-09-7 HCAPLUS
CN Cobalt lithium magnesium titanium oxide (Co0.98LiMg0.01Ti0.02O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.98 | 7440-48-4 |
| Ti | 0.02 | 7440-32-6 |

| | | |
|---|---|---|
| Mg | 0.01 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

L84 ANSWER 23 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:221502 HCAPLUS Full-text
DN 135:35140
TI Cathodic behavior of (Co, Ti, Mg)-doped LiNiO2
AU Chowdari, B. V. R.; Subba Rao, G. V.; Chow, S. Y.
CS Department of Physics, National University of Singapore, Singapore, 110260, Singapore
SO Solid State Ionics (2001), 140(1,2), 55-62
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB Single-phase lithium nickel oxides with the formula LiNi0.8Co0.2-2yTiyMgyO2, y=0.0-0.075 have been prepared and characterized. Their electrochem. properties as cathode during charging and discharging are discussed. Thermal behavior of the charged cathodes was studied by differential scanning calorimetry (DSC). Results show that the cathodic behavior of compds. with y=0.0 and 0.03 and those with y=0.05 and 0.075 are similar with respect to the initial irreversible capacity, suppression of phase transitions, cycling behavior and capacity fading. The composition with y=0.05 shows a cathodic capacity of 120 mA h/g at the 0.5 C rate and 2.5-4.4 V voltage window with only 7% fading over 40 cycles. The thermal behavior of the charged cathode with y=0.05 is improved compared to y=0.0 and 0.03. A qual. explanation for the observed cathodic behavior with various y values is offered in terms of the occupancy of the magnesium-ions in the Li and Ni layers in the lattice.
IT 113066-89-0, Cobalt lithium nickel oxide co0.2lini0.8o2
343942-36-9 343942-39-2 343942-41-6
RL: DEV (Device component use); USES (Uses)
(cathodic behavior of (Co, Ti, Mg)-doped LiNiO2)
RN 113066-89-0 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.2LiNi0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 343942-36-9 HCAPLUS
CN Cobalt lithium magnesium nickel titanium oxide (Co0.14LiMg0.03Ni0.8Ti0.03O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.14 | 7440-48-4 |
| Ti | 0.03 | 7440-32-6 |
| Ni | 0.8 | 7440-02-0 |
| Mg | 0.03 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 343942-39-2 HCAPLUS
CN Cobalt lithium magnesium nickel titanium oxide

(Co0.1LiMg0.05Ni0.8Ti0.05O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ti | 0.05 | 7440-32-6 |
| Ni | 0.8 | 7440-02-0 |
| Mg | 0.05 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RN 343942-41-6 HCAPLUS
CN Cobalt lithium magnesium nickel titanium oxide (Co0.05LiMg0.08Ni0.8Ti0.08O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.05 | 7440-48-4 |
| Ti | 0.08 | 7440-32-6 |
| Ni | 0.8 | 7440-02-0 |
| Mg | 0.08 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 24 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 2001:19982 HCAPLUS Full-text
DN 134:165571
TI Combustion synthesis and characterization of substituted lithium cobalt oxides in lithium batteries
AU Julien, C.; Camacho-Lopez, M. A.; Mohan, T.; Chitra, S.; Kalyani, P.; Gopukumar, S.
CS Laboratoire des Milieux Desordonnes et Heterogenes, UMR 7603, Universite Pierre et Marie Curie, Paris, 75252, Fr.
SO Solid State Ionics (2000), 135(1-4), 241-248
CODEN: SSIOD3; ISSN: 0167-2738
PB Elsevier Science B.V.
DT Journal
LA English
AB Substituted lithium cobaltates LiCo0.5M0.5O2 (where M = Ni, Mg, Mn, Zn) have been synthesized by the combustion of mixts. obtained from aqueous solns. containing the resp. metal nitrates, LiNO3, and urea in stoichiometric amts. The mixts., when dried and fired at 700°C, ignite and yield submicron-sized powders. Phys. properties of the synthesized products are discussed in the light of structural (XRD, SEM) and spectroscopic (FTIR and Raman) measurements. XRD results show that most of the compds. have a structure similar to LiCoO2, while LiCo0.5Mn0.5O2 crystallizes with the modified-spinel structure. FTIR and Raman measurements probed the cationic environment in LiCo0.5M0.5O2 structures in order to investigate cation distribution and local distortion in the lithiated lattice. Performances of lithiated oxides as cathode materials in lithium batteries and substitutive effect on electrochem. properties have been investigated. Stable charge-discharge features have been observed for Li//LiCo0.5M0.5O2 cells cycled in the potential range from 3.0 to 4.2 V when Ni and Zn dopants are used.
IT 101920-93-8P, Cobalt lithium nickel oxide Co0.5LiNi0.5O2
118819-08-2P, Cobalt lithium manganese oxide Co0.5LiMn0.5O2

324753-31-3P, Cobalt lithium magnesium oxide (Co0.5LiMg0.5O2)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(combustion synthesis and characterization of substituted lithium cobalt oxides in lithium batteries)

RN 101920-93-8 HCAPLUS
CN Cobalt lithium nickel oxide (Co0.5LiNi0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Ni | 0.5 | 7440-02-0 |
| Li | 1 | 7439-93-2 |

RN 118819-08-2 HCAPLUS
CN Cobalt lithium manganese oxide (Co0.5LiMn0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Mn | 0.5 | 7439-96-5 |
| Li | 1 | 7439-93-2 |

RN 324753-31-3 HCAPLUS
CN Cobalt lithium magnesium oxide (Co0.5LiMg0.5O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.5 | 7440-48-4 |
| Mg | 0.5 | 7439-95-4 |
| Li | 1 | 7439-93-2 |

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L84 ANSWER 25 OF 25 HCAPLUS COPYRIGHT 2009 ACS on STN
AN 1998:596036 HCAPLUS Full-text
DN 129:205207
OREF 129:41630h,41631a
TI Secondary lithium batteries with lithium and magnesium containing oxide cathodes
IN Igawa, Akiko; Tsuruoka, Shigeo; Yoshikawa, Masanori; Muranaka, Kiyoshi; Komatsu, Yoshimi; Yamauchi, Shuko
PA Hitachi, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 25 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|---|
| PI | JP 10241691 | A | 19980911 | JP 1997-354358 | 19971224 <-- |
| | JP 3624663 | B2 | 20050302 | | |
| PRAI | JP 1996-343041 | A | 19961224 <-- | | |

AB The batteries use cathodes composed layer structured LiMO2, where M = Mn, Co, Ni, and/or Fe, and part of Li is replaced by Mg. The cathode active mass is preferably LiwMgvNixM1yNzO2, where M1 = Mn, Co, and/or Fe, N = Si, Al, Ca, Cu, P, In, Sn, Mo, Nb, Y, Bi and/or B, 0 ≤w ≤1.2, 0.001 ≤v ≤0.02, 0.5 ≤x <0.85, 0.05 ≤y ≤0.5, and 0 ≤z ≤0.2; LiwMgvCoxM2z'O2, where M2 = Ni, Mn, Fe, Si, Al, Ca, Cu, P, In, Sn, Mo, Nb, YH, Bi and/or B, and 0 ≤z ≤0.5; LiwMgvMnxM3z'O2, where M3 = Ni, Co, Fe, Si, Al, Ca, Cu,. P, In, Sn, Mo, Nb, Y, Bi and/or B; or LiwMgvFex M4z'O2, where M4 = Ni, Co, Mn, Si, Al, Ca, Cu, P, In, Sn, Mo, Nb, Y, Bi and/or B.

IT 212076-12-5P 212076-27-2P, Cobalt lithium manganese nickel oxide (Co0.1Li0-1.2Mn0.1Ni0.8O2) 212076-58-9P 212076-60-3P 212077-01-5P
RL: DEV (Device component use); IMF (Industrial manufacture); PRP (Properties); PREP (Preparation); USES (Uses)
(compns. and properties of magnesium containing lithium transition metal oxide cathodes for secondary lithium batteries)

RN 212076-12-5 HCAPLUS
CN Cobalt lithium magnesium nickel tin oxide (Co0.2Li0-1.2Mg0.01Ni0.7Sn0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Sn | 0.1 | 7440-31-5 |
| Ni | 0.7 | 7440-02-0 |
| Mg | 0.01 | 7439-95-4 |
| Li | 0 - 1.2 | 7439-93-2 |

RN 212076-27-2 HCAPLUS
CN Cobalt lithium manganese nickel oxide (Co0.1Li0-1.2Mn0.1Ni0.8O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.1 | 7440-48-4 |
| Ni | 0.8 | 7440-02-0 |
| Mn | 0.1 | 7439-96-5 |
| Li | 0 - 1.2 | 7439-93-2 |

RN 212076-58-9 HCAPLUS
CN Cobalt lithium magnesium manganese tin oxide (Co0.7Li0-1.2Mg0.01Mn0.2Sn0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.7 | 7440-48-4 |
| Sn | 0.1 | 7440-31-5 |
| Mn | 0.2 | 7439-96-5 |
| Mg | 0.01 | 7439-95-4 |
| Li | 0 - 1.2 | 7439-93-2 |

RN 212076-60-3 HCAPLUS
CN Cobalt lithium magnesium nickel tin oxide (Co0.7Li0-1.2Mg0.01Ni0.2Sn0.1O2)

(CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.7 | 7440-48-4 |
| Sn | 0.1 | 7440-31-5 |
| Ni | 0.2 | 7440-02-0 |
| Mg | 0.01 | 7439-95-4 |
| Li | 0 - 1.2 | 7439-93-2 |

RN 212077-01-5 HCAPLUS
CN Cobalt lithium magnesium manganese tin oxide (Co0.2Li0-1.2Mg0.01Mn0.7Sn0.1O2) (CA INDEX NAME)

| Component | Ratio | Component Registry Number |
|---|---|---|
| O | 2 | 17778-80-2 |
| Co | 0.2 | 7440-48-4 |
| Sn | 0.1 | 7440-31-5 |
| Mn | 0.7 | 7439-96-5 |
| Mg | 0.01 | 7439-95-4 |
| Li | 0 - 1.2 | 7439-93-2 |

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(FILE 'HOME' ENTERED AT 09:32:14 ON 08 JAN 2009)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 09:33:06 ON 08 JAN 2009
L1 1 S US20070196736/PN OR (US2006-594459# OR WO2005-JP3723 OR JP200
E TAKAHASHI/AU
L2 11 S E3
E TAKAHASHI Y/AU
L3 1514 S E3-E7,E22,E26,E27
E TAKAHASHI NAME/AU
L4 208 S E4
E YASUFUMI/AU
E YASU FUMI/AU
E KINOSHITA/AU
L5 512 S E3-E5,E19
E KINOSHITA NAME/AU
L6 52 S E4
E AKIRA/AU
L7 21 S E3,E65,E122
E TODE/AU
L8 23 S E24,E28,E29
E SHINGO/AU
L9 1 S E31
E HASEGAWA/AU
L10 5 S E3
E HASEGAWA K/AU
L11 749 S E3,E4,E58,E64
E HASEGAWA NAME/AU
L12 91 S E4
E KAZUHIRO/AU

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L13           1 S E3
                E KAZU HIRO/AU
L14           1 S E7
                E FUJIMOTO/AU
L15           3 S E3
                E FUJIMOTO H/AU
L16         637 S E3-E5,E46,E77
                E FUJIMOTO NAME/AU
L17          27 S E4
                E HIROYUKI/AU
L18          11 S E3,E8
                E FUJI MOTO/AU
L19          11 S E6
                E NAKANE/AU
L20           2 S E3
                E NAKANE I/AU
L21          89 S E3,E8
L22           9 S E111
                E IKURO/AU
                E FUJITANI/AU
                E FUJITANI S/AU
L23         282 S E3,E13-E17
                E FUJITANI NAME/AU
L24           3 S E4
                E SHIN/AU
L25           2 S E3
                E SHIN FUJI/AU
                E SHIN F/AU
                E SHIN NAME/AU
L26          95 S E4,E5
                E SANYO/CO
L27       30845 S E3/PA,CS,CO
L28       20225 S E65-E124/CO,PA,CS
                E E79+ALL
L29       21224 S E2+RT OR E70 OR E2-E70/PA,CS
                SEL RN L1

     FILE 'REGISTRY' ENTERED AT 09:41:30 ON 08 JAN 2009
L30           3 S E1-E3
L31        7930 S (LI/ELS OR LITHIUM OR 7439-93-2/CRN) AND (CO/ELS OR COBALT OR
L32         153 S L31 AND (ZR/ELS OR ZIRCONIUM OR 7440-67-7/CRN)
L33         904 S L31 AND (MG/ELS OR MAGNESIUM OR 7439-95-4/CRN)
L34        1028 S L32,L33
L35         271 S L34 AND (AL/ELS OR ALUMINUM OR 7440-34-8/CRN)
L36          62 S L34 AND (TI/ELS OR TITANIUM OR 7440-32-6/CRN)
L37          17 S L34 AND (SN/ELS OR TIN OR 7440-31-5/CRN)
L38          22 S L32 AND 4/ELC.SUB
L39         103 S L33 AND 4/ELC.SUB
L40           8 S L34 AND 5/ELC.SUB AND (ZR AND MG)/ELS
L41           9 S L37 NOT (FE OR HF OR P)/ELS
L42          39 S L36 NOT (S OR CE OR K OR NB OR B OR DY OR V OR BE OR SC OR GA
L43         183 S L35 NOT (S OR CE OR K OR NB OR B OR DY OR V OR BE OR SC OR GA
L44          99 S L43 NOT (NI OR MN)/ELS
L45          95 S L44 NOT (SI OR NA OR TL)/ELS
L46           1 S L30 AND MG/ELS
L47         267 S L38-L42,L45,L46
                SAV TEMP L47 LAURA594A/A
L48        4185 S L31 AND (NI/ELS OR NICKEL OR 7440-02-0/CRN)
L49        2859 S L31 AND (MN/ELS OR MANGANESE OR 7439-96-5/CRN)
L50         453 S L48 AND 4/ELC.SUB
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L51         401 S L49 AND 4/ELC.SUB
L52        1038 S L49 AND L48 AND 5/ELC.SUB
L53           1 S L30 AND L48-L52
L54        1892 S L50-L53
                SAV TEMP L54 LAURA594B/A
L55           2 S L54 NOT TIS/CI
L56        1890 S L54 NOT L55

     FILE 'HCAPLUS' ENTERED AT 10:08:55 ON 08 JAN 2009
L57         293 S L47
L58        3374 S L56
L59         111 S L57 AND L58
L60          99 S L59 AND H01M/IPC,IC,ICM,ICS,EPC
                E BATTERY/CT
L61       65772 S E4+OLD,NT OR E5+OLD,NT OR E6+OLD,NT OR E7+OLD,NT
                E E3+ALL
                E E1
                E E8+ALL
L62       10981 S E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT
                E BATTERIES/CT
                E E3+ALL
L63      149719 S E1 OR E2+OLD,NT OR E3+OLD,NT OR E4+OLD,NT OR E5+OLD,NT
L64         111 S L59 AND L61-L63
L65         111 S L60,L64
L66          21 S L1-L29 AND L65
L67          12 S L65 AND PY<=2006 NOT P/DT
L68          85 S L65 AND (PD<=20060926 OR PRD<=20060926 OR AD<=20060926) AND P
L69          44 S L68 AND US/PC,PRC,AC
L70          41 S L68 NOT L69
L71          17 S L70 AND PD<=20060926
L72          24 S L70 NOT L71
L73          14 S L66 AND L67,L68
L74          78 S L67,L69,L71,L73
L75          37 S L74 AND ?LAYER?
L76          34 S L74 AND MIX?
L77          53 S L75,L76
L78          26 S L77 AND (NONAQ? OR NON AQUEOUS?)
L79          30 S L73,L78
L80          25 S L77 NOT L79
L81          22 S L80 AND SECONDARY
L82           3 S L80 NOT L81
L83          25 S L80-L82
L84          25 S L83 AND ?CATHOD?
L85          28 S L79 AND ?CATHOD?
L86           2 S L79 NOT L85
L87          30 S L85,L86
L88          30 S L87 AND SECONDARY

     FILE 'HCAPLUS' ENTERED AT 10:18:05 ON 08 JAN 2009

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